

OUR MANDATE

- a) Conduct research into all aspects of animal diseases, their treatment and control.
- b) Develop and produce animal vaccines, sera and biological 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.

TABLE OF CONTENTS

Our mandate	-	-	-	-	-	-	-	-	-	i
Our Mission	-	-	-	-	-	-	-	-	-	i
Table of contents	-	-	-	-	-	-	-	-	-	ii
Preface	-	-	-	-	-	-	-	-	-	v
List of Tables	-	-	-	-	-	-	-	-	-	vi
List of Figures	-	-	-	-	-	-	-	-	-	viii
Institute's Board Members	-	-	-	-	-	-	-	-	-	ix
Institute Management Committee (IMC)	-	-	-	-	-	-	-	-	-	x
Major Activities in the Institute in pictures	-	-	-	-	-	-	-	-	-	xi
Research Reports (highlights/Updates)	-	-	-	-	-	-	-	-	-	xvii
Research Collaborations between NVRI Vom and International Donor Agencies	-	-	-	-	-	-	-	-	-	xx
List of Approved ARCN Sponsored Competitive Research Grant Scheme Projects for NVRI Vom	-	-	-	-	-	-	-	-	-	xxi
List of 2013 Capital Projects for NVRI, Vom-	-	-	-	-	-	-	-	-	-	xxii

REPORTS FROM DIVISIONS

Administration	-	-	-	-	-	-	-	-	-	1
Applied Molecular Biology	-	-	-	-	-	-	-	-	-	9
Bacterial Research	-	-	-	-	-	-	-	-	-	11

Bacterial Vaccine Production	-	-	-	-	-	-	-	-	16
Biochemistry	-	-	-	-	-	-	-	-	18
Dagwom Farm	-	-	-	-	-	-	-	-	20
Dermatophilosis	-	-	-	-	-	-	-	-	23
Diagnostic	-	-	-	-	-	-	-	-	25
Finance and Accounts	-	-	-	-	-	-	-	-	29
Internal Audit	-	-	-	-	-	-	-	-	31
Library and Documentation	-	-	-	-	-	-	-	-	33
Livestock Investigation	-	-	-	-	-	-	-	-	35
Outstation Laboratories	-	-	-	-	-	-	-	-	39
Parasitology	-	-	-	-	-	-	-	-	42
Planning, Monitoring and Evaluation					-	-	-	-	45
Poultry	-	-	-	-	-	-	-	-	53
Printing and Publications (Press)					-	-	-	-	56
Quality Control	-	-	-	-	-	-	-	-	59
Regional Lab for AI & Other Transboundary Animal Diseases									62
Staff Primary School	-	-	-	-	-	-	-	-	66
Staff Secondary School	-	-	-	-	-	-	-	-	71
Stores	-	-	-	-	-	-	-	-	74
Veterinary Extension and Research Liaison Services									78
Viral Research	-	-	-	-	-	-	-	-	79

Viral Vaccine Production	-	-	-	-	-	-	82
Workshop	-	-	-	-	-	-	87
OTHER REPORTS							
Journal publications by staff	-	-	-	-	-	-	89
List of Seminar topics presented in 2013	-	-	-	-	-	-	90
Major Activities held in the Institute, 2013	-	-	-	-	-	-	91
Special Events	-	-	-	-	-	-	92
University Dons on Sabbatical in the Institute	-	-	-	-	-	-	93
List of staff who retired in 2013	-	-	-	-	-	-	94
List of staff that transferred their service in 2013	-	-	-	-	-	-	95
List of deceased staff in 2013	-	-	-	-	-	-	95
List of staff who resigned their appointment	-	-	-	-	-	-	96
List of staff that completed in-service training in 2013	-	-	-	-	-	-	97
List of staff approved for training in 2013	-	-	-	-	-	-	98
Acknowledgement by chairman Seminar Committee	-	-	-	-	-	-	100
List of NVRI Outstation (satellite) laboratories	-	-	-	-	-	-	101

PREFACE

In pursuance of the Institute's mandate in line with the current Agricultural Transformation Agenda of the federal government, the Institute during the year 2013 focused on health problems militating against profitable livestock production in Nigeria. A three pronged approach was adopted to ensure multi faceted approach and resolution of challenges facing livestock farmers and consumers. These were; vaccine research and development, quality assurance and timely delivery of vaccines to end users, Sero monitoring, diagnosis and surveillance of patterns of livestock and zoonotic diseases of economic importance across the country. Information on technologies generated was also disseminated to the public through the Extension arm of the Institute. Staff worked harmoniously to ensure the timely realization of the set goals.

In line with global best practices on vaccine research and development, the Institute is conducting research on the development and standardization of multivalent vaccines for use in livestock. When this is finally achieved it will translate to cost effective disease control.

To ensure food safety and promote trade in poultry and poultry products, the Institute is conducting research on the development of Salmonellae disease surveillance and control programme. It is hoped that this project will identify and characterize major Salmonella isolates circulating in poultry flocks in Nigeria and determine antibiotic resistance among circulating strains. The information will assist in the control of food borne infections associated with Salmonellae.

Results of collaborative research between the Institute and international and local donor agencies as well as progress on the Competitive Research Grant Scheme of ARCN are presented in this report. We look forward to further collaborations with multinational and national Funding Organizations.

The inauguration of the Institute's Governing Board during the year was a welcome development. It is hoped that their wealth of experience and connections, will add impetus to research, general administration of the Institute and attract better funding in the coming years.

I warmly invite you to read through this report which presents a synopsis of the major research activities of the Institute in the year 2013.

Dr. M. S. Ahmed
Executive Director

LIST OF TABLES

Table 1	Diagnosis and Routine Activities by Applied Biotechnology Division- - - - - - - - - -	9
Table 2	Referral Cases Received and Processed by BRD in 2013-	15
Table 3	Annual Vaccine Production Record in Doses- - -	16
Table 4	Samples received from different States of Nigeria by CDL-	27
Table 5	Revenue generated internally in 2013- - -	30
Table 6	Feed supplied by LID to Units in 2013 - - -	36
Table 7	Diseases diagnosed in animals of LID in 2013 - -	37
Table 8	Parasites identified from different animal species - -	42
Table 9	Faecal samples and parasites identified from various animal	43
Table 10	External parasites identified from various animal species	44
Table 11	Chicken Egg Production in 2013 - - - -	54
Table 12	Eggs Supplied for Various Vaccines in 2013 - -	55
Table 13	Vaccine Eggs Supplied to Various Laboratories in 2013-	55
Table 14	Institute's jobs printed by the Press in 2013 - -	56
Table 15	External Jobs printed by the Press in 2013 - -	57
Table 16	Surveillance Samples Processed in 2013 - - -	65
Table 17	Results of 15 th Annual Inter-House Sports Competition-	68
Table 18	Results of Entrance Examinations in 2013 - - -	68
Table 19	Analysis of the 2013 WAEC Result by Subjects - -	72

Table 20	Analysis of the 2013 NECO Result by Subjects	-	-	73
Table 21	Stock Movement (Quantity) in 2013	-	-	75
Table 22	Comparative Stock Movement of Vaccines in 2012 & 2013			75
Table 23	Showing Feed and Concentrates used in 2013	-	-	76
Table 24	Vaccines Production Figure (vials) Jan-Dec 2013	-	-	84
Table 25	Vaccines Production Figure (doses) Jan-Dec 2013			85
Table 26	Visitation of Dignitaries, Organizations & Institution to NVRI			91
Table 27	List of Retired Staff in 2013	-	-	94
Table 28	List of Transferred Staff in 2013	-	-	95
Table 29	List of Deceased Staff in 2013	-	-	95
Table 30	List of Resigned Staff	-	-	96
Table 31	List of Staff that Completed In-service Training in 2013-			97
Table 32	List of Staff Approved for Training in 2013	-	-	98

LIST OF FIGURES

Figure 1: Infectious sinusitis in turkey at a poultry farm in Vom caused by <i>Mycoplasma synovae</i>	-	-	-	12
Figure 2: An emaciated CBPP infected cattle	-	-	-	12
Figure 3: Researcher performing microscopic examination of <i>Mycoplasma species</i>	-	-	-	12
Figure 4: Microscopic view of colonies of <i>Mycoplasma mycoides subspecies mycoides</i> Small Colony (MmmSC) using stereomicroscope	-	-	-	12
Figure 5: Viral vaccine production chart	-	-	-	46
Figure 6: Bacterial vaccine production chart	-	-	-	47

THE INSTITUTE'S BOARD MEMBERS



Dr Isaac Egboja – Board Chairman



Dr Ado Yusuf -Member



Dr Abu M. Ataja - Member



Mr. Nicholas Msheliza - Member



Pastor Yusufu Alfa Tsenya –Member



Alhaji Yusuf Mukhtar –Member



Dr M.S. Ahmed EDVR, Vom - Member



Dr Joseph Nyager (CVO) - Member

INSTITUTE INTERNAL MANAGEMENT COMMITTEE (IMC) MEMBERS



Dr D. Shamaki
(Director, Research)



Dr J. U. Molokwu
(Director, Planning)



Dr A. E. Itodo
(Director, Production)



Mrs. E. P. Wapmuk
(Director, Admin & Supply)



Dr M. S. Ahmed
Executive Director/CEO



Dr R. A. Ocholi
(Director, Quality Assurance)



Mr. Moses Fabunmi
Internal Auditor



Mr. Anebi Idoko
(Director, Finance & Accounts)



Chief B. Echeonwu
(Ag Provost, FCVMLT)

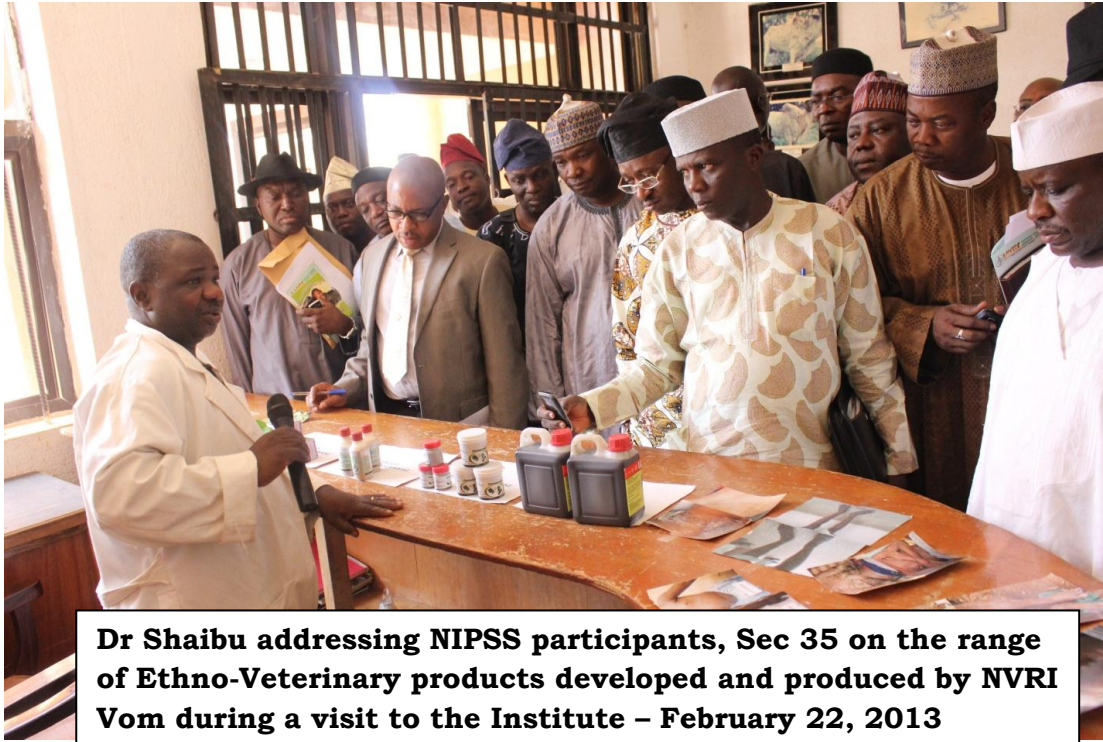


Dr P. A. Okewole
(Director, Diagnostic & Extension)



Dr N. J. Zwandor
(Ag Provost, FCAHPT)

MAJOR ACTIVITIES IN THE INSTITUTE IN PICTURES



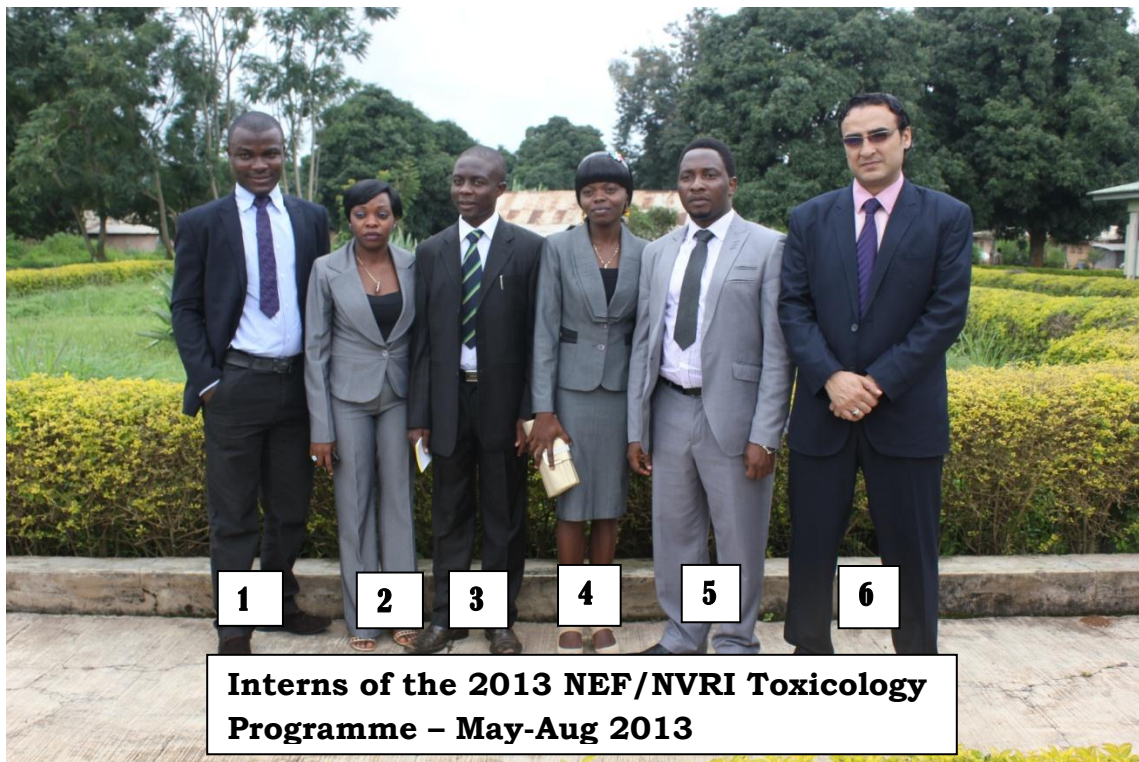
Dr Shaibu addressing NIPSS participants, Sec 35 on the range of Ethno-Veterinary products developed and produced by NVRI Vom during a visit to the Institute – February 22, 2013



Executive Director NVRI Vom conducts the newly posted Commissioner of Police Plateau State round the Institute during a visit to the Institute– March 8, 2013



Controller, Ministry of Lands, Housing and Urban Development, Jos (in black cap) listening to EDVR Dr M. S. Ahmed during his courtesy call – 5/9/2013



Interns of the 2013 NEF/NVRI Toxicology Programme – May-Aug 2013

Alimi Yusuf¹(Nigeria), Nadege Goumkwa²(Cameroon), Claude Kwe³(Cameroon), Modupe Mogbojuri⁴ (Nigeria), Chiedozi Oparaji⁵(Nigeria), Hany Ahmed⁶(Egypt)



President of the African Education Initiative (arrow), Dr Chudy Nduaka receiving a present from the 2013 NEF/NVRI Toxicology graduates; 25th Aug, 2013



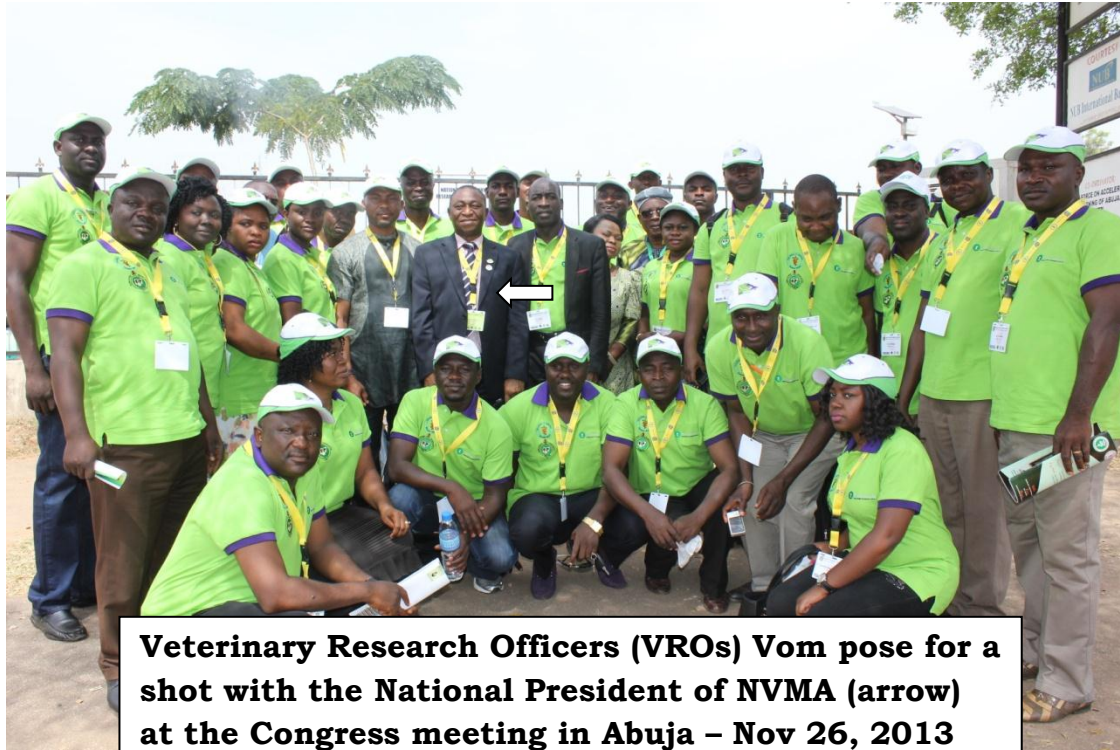
The Unit Commander (arrow) and some members of the Federal Road Safety Corps being led by EDVR (blue shirt) during their visit to NVRI on 10th Sept 2013



NVRI Staff School Students using the PTA Donated Set of 20 Computers - October 21, 2013



Visit to Integrated Dairy Farm (IDF) Vom by NVRI Institute's Governing Board - 23rd October, 2013



Veterinary Research Officers (VROs) Vom pose for a shot with the National President of NVMA (arrow) at the Congress meeting in Abuja – Nov 26, 2013



The Chairman (pink shirt) and Members of the Institute Governing Board listening to Dr. Agnes Oladokun; HOD Viral Vaccine Division (arrow) during their familiarization visit to the Division



Senate Committee on Agriculture on oversight function to NVRI, Vom – Nov 21, 2013



National Agricultural Ministerial meeting Abuja 4th - 6th December, 2013; HOD Extension Dr L. U. Muhammad (arrow) responds to questions by visitors to NVRI booth.

RESEARCH REPORTS (HIGHLIGHTS/UPDATES)

1. Applied Biotechnology Division's research project under the Vaccine Research and Development Programme funded by ARCN CARGS Programme titled, "Evaluation of the Immunogenicity of Haemagglutinin Genes of H5N1 Sublineages of AI Virus from Nigeria for Vaccine Development is on-going. As part of the achievements of the project, one member of the project team has been trained on sequencing and phylogenetic analysis of AI genome. Four HA and four NA genes have been sequenced to achieve the next objective of the project. C-His pETite-NA clone has been constructed and is being screened for recombinant NA.
2. The CARGS Project on mycoplasmosis by the Bacterial Research Division was able to make some progress in the year under review. Passive sampling of 5 Agro ecological zones, namely: South-West, South-East, South-South, North-Central & North-East was done. Two states per zone were visited and samples collected from major cattle markets and abattoirs. Total number of samples collected and still being analyzed are 1,403. This is made up of 319 ear swabs, 344 Nasal swabs, 674 sera, 27 pleural fluid, 25 lung samples, 6 lymph nodes and 8 thoracic swabs. Ninety (90) presumptive *Mycoplasma mycoides mycoides* Small Colony (MmmSC) organisms have been identified. Viability test on this isolates is ongoing. The Coordinates of sampled sites were recorded.
3. The CARGS project on "Isolation and characterization of *Salmonellae* for the development of a disease surveillance and control programme in commercial poultry in Nigeria" was able to make progress in 2013. Out of the 205 *Salmonella* isolates made, 189 were serotyped and 53 different serotypes were identified. Major serotypes identified were *Salmonella kentucky*, *S. enteritides* subspecies *enteritides*, *S. elisabethville* and *S.*

poona. The MIC results obtained show that 52 (45.6%) were susceptible to all the 14 panels of antimicrobials, while 6 (5.26%) were resistant to one antimicrobial, 7 (6.14%) to two antimicrobials, 3 (2.63%) to three antimicrobials, 6 (5.26%) to four antimicrobials, 7 (6.14%) to five antimicrobials, 26 (25.44%) to six antimicrobials, 4(3.51%) to seven antimicrobials and 3 (2.63%) to eight antimicrobials

4. In the year under review, the Brucella Research Laboratory carried out re-testing of cattle, human, sheep and goats' sera collected in September 2011 for the ICONZ project from Kachia Grazing Reserve with the Spain antigen by both standard and modified Rose Bengal plate test. A workshop was organized at the Kachia Grazing Reserve where the preliminary results and recommendations of the ICONZ project work were discussed with the Fulanis in English, Hausa and Fulfulde. Also, an experimental conjunctival vaccination was carried out at the Integrated Dairy Farm Limited (IDL) Vom and Livestock Investigation Division, NVRI using twenty cattle from each farm (10 between 6-8 months and 10 above one year). The animals were given Brucella S-19 conjunctival vaccination. Sero-monitoring of vaccinated animals was done after two week, at four weeks and subsequently after every month using Rose Bengal Plate Test. The vaccinated animals showed sero-conversion in 70 % of the animals two months post vaccination. Antibodies were subsequently clear from three months upwards.
5. Maize (*zea mays*) as a source of starch is the third most important cereal in the world after rice and wheat, and is used as food ingredient either in its native form or chemically modified, or for industrial purposes and as raw material for feed formulation. It is one of the main components of poultry diets. Comparative studies on the proximate composition of eight most available cultivars of corn in the middle belt region of Nigeria (T2PBSR-w, T2MSR-w, QPM-w, T2PBSR-w, Swan-1-SR-Y, T2E-comp-3-w, Synthetic-5-w, OP-w-local) was carried out by the Biochemistry

division of the Institute with the aim of helping farmers and feed millers make guided choices based on the standard and quality of the maize grain in terms of the nutrient content. The chemical composition and nutritive value of the various maize grains obtained were variable. The values for crude protein level ranged between 9.86 – 13.10%, fiber 2.70-6.00%, crude lipid 2.50 – 4.25% and total carbohydrate values ranged 61.94 – 69.99. Generally, the content of the main components (fat, protein and total carbohydrate) of the different maize grains were cultivar dependent. The local variety however had the highest percentage of crude protein and crude fat.

List of Research Projects Collaboration with Local and International Donor Agencies (on-going in 2013)

1. Project Title: FAO/IAEA Agriculture Programme: Molecular Diagnostics and Viral Epidemiology of Highly pathogenic Avian Influenza (H5N1) in Nigeria.

Contract holder: Dr. T. M. Joannis

2. Project Title: FAO/IAEA Agriculture Programme: Rapid and Sensitive Diagnosis, Viral and Molecular Epidemiology of Peste des Petits Ruminants (PPR) in Sheep, Goats and Camels in Nigeria.

Contract holder: Dr. D. Shamaki

3. Project Title: European Commission Integrated Control of Neglected Zoonosis: Improving Human Health and Animal Production through Scientific Innovation and Public Engagement.

Team Leader: Dr. R. A. Ocholi

4. Project Title: Biotechnology and Biological Sciences Research Council United Kingdom: Combating Infectious Diseases in Livestock for International Development.

Team Leader: Dr. R. A. Ocholi/Dr. G. I. Dogo

5. Project Title: Development of Water-based Thermo-stable Vaccine for Control of Newcastle Disease in Rural Poultry.

Team Leader: Dr. T. M. Joannis

**List of Approved ARCN Sponsored Competitive Research Grant Scheme
Projects for NVRI Vom (on-going in 2013)**

1. Project Title: Improving Commercial Poultry Production and Public Health through development of surveillance and control programme for Salmonella infections.

Principal Investigator: Dr. Maryam Muhammad

2. Project Title: Increasing small ruminants' production in Nigeria by isolation and genetic characterization of peste des petit ruminants (PPR) virus isolates and adoption of a thermostable PPR vaccine.

Principal Investigator: Dr. Timothy Woma

3. Project Title: Increasing Production of Milk and Milk Products in Nigeria to Meet Local Demand and Export through Foot and Mouth Disease Vaccine Production in Nigeria.

Principal Investigator: Dr. H. G. Ularamu

4. Project Title: Using local foodstuffs as carriers of thermostable Newcastle disease vaccine I₂, for the control of Newcastle disease in rural poultry.

Principal Investigator: Dr. J. O. Ibu

5. Project Title: Evaluation of immunogenicity of haemagglutinin genes of H5N1 sub lineages of Avian Influenza virus from Nigeria for vaccine development.

Principal Investigator: Dr. Bitrus Yakubu

6. Project Title: Improving brucellosis control in Nigeria through the production and standardization of *Brucella* antigens for disease diagnosis.

Principal Investigator: Dr. R. A. Ocholi

7. Project Title: Controlling contagious bovine pleuropneumonia (CBPP) in Nigeria using novel molecular-based vaccine.

Principal Investigator: Dr. Yewande Akalusi

**List of 2013 Capital Projects for National Veterinary Research Institute,
Vom**

1. Animal containment facility (BSL 3)
2. Provision of office equipment
3. Institute's Internal Roads
4. Special Research Programme: Multivalent Vaccine Research and Development, Clostridial Vaccine; BQ+Hantavac+HSV; Gumboro+NDVL; Fowl Typhoid; Fowl Cholera and Newcastle (Lasota)
5. Specialized Input for Vaccine Research Development and Production
6. Development of an Independent Bacterial Vaccine Production, Laboratory (BVPL) for CGMP Compliance towards establishing a Vaccine Company
7. Special Research Programme: Development of Killed Adjuvanted Rabies Cell Culture Vaccine for Dogs, Cats and Human
8. Equipping of Quality Control Laboratory for Vaccine Production and Quality Control
9. Specialized Fittings for the New Bacterial Vaccine Production Laboratory (BVPL)
10. Development of Effective Diagnostic and Control Measures for Bovine Tuberculosis
11. Special Research Programme: Integrated Livestock Health and Peri-Urban Dairy Project
12. Special Research Programme: Isolation, Serological and Molecular Characterization of Highly Pathogenic Avian Influenza (HPAI) Virus of Poultry in Nigeria
13. Special Research Programme: Antibiotic Therapy for Control of Contagious Bovine Pleuropneumonia of Cattle
14. Special Research Programme: Diagnostic Survey of Livestock and zoonotic Diseases (Animal Disease Surveillance and Disease Pattern in Nigeria) of Economic Importance
15. Monitoring and Maintenance of Sub-stations

REPORTS FROM DIVISIONS

ADMINISTRATION

The department is charged with the responsibility of assisting the Management on the day-to-day running of the Institute. This includes matters relating to Administrative and Establishment. The department also handles the processing of Retirement, Training and Welfare of staff of the Institute. The Administration Department has three (3) Divisions viz;

- i) Administration;
- ii) Stores; and
- iii) Workshop.

Under the Administration Division, the following Units exist;

Establishment Unit

The Establishment Unit is saddled with the responsibility of:

1. Appointments, Promotions, Disciplinary cases for both Junior and Senior Staff.
2. Handling of both Open and Secret Registries of Junior and Senior Staff
3. Preparation of Quarterly/Annual Reports for the Division
4. Liaising with the Records Unit to update Staff Nominal Roll
5. Coordination of general duties
6. Being the custodian of staff records
7. Assist in implementing Institutes policies
8. Interpreting government circulars, extant rules and regulations

In the period under review (2013), the Establishment Unit of the division handled the following;

1. Promotions:

Senior staff - 192

Junior staff - 98

2. Advancement/Conversion:

Senior - 5

Junior - 7

4. Disciplinary cases:

Senior Staff - One (1)

Junior staff - Nil

Records Unit

The Records Unit of the Administration Division handles the following schedules of duties:

1. Maintenance of staff records of service

2. Processing of Staff Leave:

a. Annual Leave

b. Casual Leave

c. Exam Leave

d. Sick Leave

e. Maternity Leave

3. Processing of request of Staff in both open and graded files relating to::

a. Employment

b. Retirement

- c. Deaths
- d. Dismissal
- e. Termination of appointment
- f. Updating Staff Nominal Roll as and when necessary.

In 2013, the Records Unit recorded the following:

i. Resignation	-	3
ii. Retirements	-	19
iii. Deaths	-	9
iv. Dismissal	-	Nil
v. Termination	-	Nil
vi. Transfer of Service-		3

The staff nominal roll as at December 2013 is nine hundred and fifty (950).

Pension Unit

In the year 2013, the Pension Unit achieved the following:

- i) Prompt payment of Monthly Pensions to Pensioners;
- ii) Payment of sixteen (16) Pensioners arrears who were initially under the Office of the Head of Civil Service of the Federation which was approved from March, 2013;
- iii) Verification of Pensioners domicile outside the Country;
- iv) Nine cases of deaths of active staff of the Institute were also reported in respect of their Group Life Benefits to the Office of the Head of Civil Service of the Federation that now handled the scheme centrally;
- v) Board of Trustee (BOT) Meeting held on 1st November, 2013 where major decisions were taken at the meeting for the Welfare of Pensioners of the Institute;

- iv) Enlightenment Workshop for Board of Trustee (BOT) Members/Desk Officers was organized by Fesido Ventures Nigeria Limited which was aimed at enhancing their performance on the job and improving the services of the Board/Desk Officers to Pensioners;

Attachment Unit/SIWES

Since the inception of the Students Attachment/SIWES unit in the Institute's Administration Division, it has been able to do the following:

- a. Accept some Industrial Training Personnel,
- b. Accept the Services of Corp Members posted to the Institute,
- c. Also accepted Graduates on NDE attachment programme with the Institute,
- d. A number of Interns on Internship Training were accorded opportunity to carry out their assignment with the institute
- e. The Unit is charged with the responsibilities of conducting students/participants from various Institutions who came for Educational Visit to the Institute.

In the year under review, the Unit was able to accept 114 Students on Industrial Attachment (SIWES), 36 NYSC members, 3 Graduates on NDE Training and one person on Internship Training. Eighty four (84) Schools/Institutions undertook Educational Visits to the Institute during the period under also.

LEGAL UNIT

The Legal Unit of the Institute serves as Adviser to the Institute on legal matters. It handles both criminal and civil cases of the Institute in liaison with the External Solicitors and Advocates on retainership with the Federal Ministry of Agriculture and Rural Development and the National Veterinary Research

Institute, Vom. Eight (8) cases were handled by the Unit in the year 2013 at different stages of hearing

a. Madara Limited, Vom

The Legal Unit concluded a remarkable transaction between Madara Limited and National Veterinary Research Institute, Vom. This sales transaction started some years back in which Madara Limited advertised itself (including the shares and liabilities) of the Company to National Veterinary Research Institute, Vom and the Institute was desirous in purchasing same. After a long negotiation and the release of capital from the Federal Ministry of Agriculture and Rural Development, the total purchase price of Madara Limited was paid by the Institute. The Legal Ownership of Madara is now vested in the National Veterinary Research Institute, Vom.

b. Institute's Quarantine/Triangular Land

On the issue of the Institute's quarantine land commonly referred to as the Triangular land, the Plateau State Ministry of Agriculture indicated interest in the same land to set up ASTC Headquarters. The Internal Management Committee of the Institute (IMC) took a decision on the issue by conceding to their request but also requested that an alternative land be provided for its Staff Housing Scheme by the State Government but the Institute has not received any response to that effect yet.

Protocol Unit

The Protocol Unit is saddled with the responsibility of receiving, accommodating, entertaining and transporting visitors and very important personalities (VIPs) of local and international repute in the Institute. These activities were carried out in liaison with the other relevant Sections/Departments of the Institute, Ministries and Government Agencies.

Training Unit

The Training Unit is saddled with the following responsibilities:

1. Advising on training needs of staff
2. Recommending staff for appropriate training in accordance with the Institute's Training Policy.
3. Processing of staff request for training
4. Recommending appropriate refund of monies paid in respect of staff training on completion of course of study.
5. Liaising with the Records Unit in keeping records of staff on Training; and
6. Other issues relating to staff training.

In 2013 the Training Unit recorded the training of the following number of Staff:

- i. Twenty (20) Veterinary Research Officer
- ii. Six (6) Medical Laboratory Scientists
- iii. Four (4) Medical Laboratory Technician
- iv. Twelve (12) others

Ten (10) Staff of the Institute completed their In- Service Training in 2013.

Security Unit

Introduction

This Unit during the period under review was engaged in the provision of general security of lives and properties. The Institute is demarcated into three (3) LOTS i.e. A, B and C for effective coverage. LOT A was effectively manned by Institute Internal security Services while LOT B and C were manned by the private security firms; Executive Guards Ltd and Pahek Security Services Ltd.

This is in compliance with Federal Government's directive on out-sourcing security cadre in its employment. Also, armed policemen provided additional security because of the state of insecurity in the nation

a. Security of Dignitaries on visit to NVRI in 2013

In the year 2013, the Institute witnessed influx of high profile personalities both national and international. This Unit provided adequate security to all the VIPs such as Senate and House of Representative Committees on Agriculture on oversight functions, NIPPS Participants on familiarization visits, visits of NVRI Governing board and Expatriate Partners on Research. This Unit also monitored and provided security during activities such as the Institute's routine/special seminars, workshops and other social activities.

b. Monitoring of Students' Activities

All social activities of students of the two Federal Colleges, FCAH&PT and FCVMLT, Vom were closely monitored and covered by the Unit to prevent all forms of hooliganism

c. Collaboration with other Security Agencies

For effective coverage of the Institute and Colleges in the year 2013, there was continued positive synergy with other security agencies at making the workplace free of destabilizing factors that could make learning, research, and working environment difficult and frustrating. The Unit synergized with the DSS, Conventional policemen, mobile police force, counter Terrorism Unit (CTU) and the SIB respectively which yielded desired results during the year 2013.

d. Amphibious Activities

The Unit also carried out its responsibilities by the collection, collation, interpretation and processing of all information of value to the management so as to assist in the day to day administration using the best modern security practices and available logistic as well as liaising with the legal Unit. The Unit also liaised with judicial authorities in matters of security concern.

Achievements

The Unit in the year under review recorded the followings achievements:

1. Protection of lives and properties from eminent dangers;
2. Reduction in crime rate and promotion of law and order;
3. Adequate access control measures at beats;
4. Monitoring and curtailed students' unrests ;
5. Engaged in surveillance activities
6. Provided adequate guard operations at offices, laboratories, workshops and other government installations;
7. Assisted in countering activities of hoodlums within the neighbourhood when called upon during various attacks by unknown gunmen;
8. Repelled cattle rustlers who invaded Livestock Investigation Department LID.

Conclusion

The general security situation during the period under review was peaceful within the Institute as crime rate was reduced to the barest minimum. The Unit is therefore grateful to Management for all the support.

APPLIED BIOTECHNOLOGY

Specific Activities

In the year 2013, the Division was involved in the collaborative research project of the Institute titled, "Epidemiology, Diagnosis and Control of African Swine Fever in Nigeria" and the NVRI/IAEA TCP project on PPR. Surveillance of Microbial Population in Raw and Treated Water in Jos and Environs is another project which the division has commenced.

The division is however, awaiting approval of the under listed research proposals submitted for consideration:

1. Optimization and Adoption of RT-LAMP for Rapid Detection of Peste des Petits Ruminants Virus in Nigeria,
2. Antigenic and Molecular Characterization of Bat Rabies Virus in Plateau and Bauchi States of Nigeria,
3. Molecular Characterization of Dengue Virus from Mosquitoes and Humans in Nigeria.

Table 1: Diagnosis and Routine Activities by Applied Biotechnology Division

S/No	Type of Sample	No. Analysed	Type of Test
1	Water	38	PCR
2	Clinical samples/isolates	45	PPR RT-PCR
3	Blood	46	Trypanosomiasis PCR
4	Plasmids	4	PCR
5	Blood/tissues	27	Leishmania PCR
6	Blood/tissues	10	ASF PCR
7	Tracheal & cloacal swabs	240	NDV RT-PCR
8	Cultured cells	84	Salmonella PCR
9	Cultured cells	39	Leptospira PCR
10	Seed & root	4	P. mucuna PCR
11	Isolates	4	Capripox PCR
12	Tissues	23	Rabies RT-PCR

Challenges/Constraints

There has been an increase in demand for veterinary medical biotechnology based laboratory analyses and hence there is need for the purchase of Real-Time PCR Machine, CPU for the Gel Documentation System and laboratory reagents and consumables. The division also requires two sets of agarose gel electrophoresis apparatus (Bio-Rad). Not servicing equipment and laboratory fittings at regular intervals is also a constraint.

Future Plans

The existing projects and collaborative research projects continue into 2014 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 in 2014. The division has plans to conduct trainings on modern veterinary medical biotechnology diagnostic and research techniques for both national and international participants in the year 2014.

BACTERIAL RESEARCH

Mycoplasma Research Laboratory

Mycoplasma infection is responsible for major losses in livestock production in Africa with serious socio- economic consequences and is thus important in international trade of animals and animal products (Nicholas, 2003). The Mycoplasma research laboratory of the Institute therefore conducts research and develops new techniques for the diagnosis and control of CBPP. It also produces antigens/isolate bank for future vaccine development. Apart from research, it also carries out routine diagnostic activities. In 2013, 40 avian sera, 120 caprine lungs, 680 bovine swabs and 1200 bovine sera were analyzed in the laboratory. Out of these, three caprine lung tissues, 16 avian sera, 19 bovine tissues and 264 bovine sera were confirmed positive.

The section also assisted two MSc and one PhD postgraduate students on laboratory bench experience and analysis of their research samples.

It is hoped that in the coming year the *Mycoplasma* lab will carry out viability test on presumptive isolates, freeze dry the isolates and carry out the molecular characterization of isolates.



Fig.1. Infectious sinusitis in Turkey at a poultry farm in Vom (*Mycoplasma synovae*)



Fig.2: An emaciated CBPP infected cattle



Fig.3. Examination of *Mycoplasma* organism with stereomicroscope



Fig.4: Colonies of *Mycoplasma mycoides* subspecies *mycoides* Small Colony (MmmSC)

Salmonella Research Laboratory

Salmonellosis is a major economic disease in animals and a major public health hazard in man. To improve poultry production and protect the public health, *Salmonella* surveillance and control programme is necessary. The implementation of a monitoring programme for detecting the development of drug resistance is also needed. Accurate strain identification is essential for effective epidemiological investigations. Serotyping, antimicrobial susceptibility determination and molecular genotyping will highlight the most common serotypes and clones of the organism and assist in developing control strategies in Nigeria. In view of the above the Salmonella Research laboratory conducts research on “Isolation and characterization of *Salmonellae* for the development of a disease surveillance and control programme in commercial poultry in Nigeria”. The aim of the study is to improve commercial poultry production and public health through the development of a surveillance and control programme for Salmonellosis. Objectives already achieved include serotype distribution and their antimicrobial susceptibility; education of farmers and extension staff on the role of *Salmonella* and its public health significance in commercial poultry production. Also, the Phenotypic, serotype and genetic features are being determined. The challenge faced is the delay in release of fund to complete sample collection and commence molecular characterization of the isolates

Brucella Research Laboratory

The mandate of this laboratory is to conduct research on the brucellosis of livestock, produce Brucella diagnostic products (e.g. antigens) and carry out routine diagnosis of referral samples for brucellosis. In the year under review, the lab carried out routine serological diagnosis by RBPT on 1,312 serum samples consisting of 786 from cattle, 311 from camel, 82 from canine, 31

equine, 27 ovine and 75 goat samples. Others were 10 milk samples, 8 bovine and 2 from equine were also screened for *Brucella* antibodies by Milk Ring Test. Eleven (11) samples cultured for brucella consisted of five vaginal swab, one vaginal fluid, two uterine and one each of fetal, placental, and intestine content. Twenty five (25) bovine sera, nine canine, six camel, one ovine and three bovine milk samples were positive for *Brucella* antibodies. However, no *Brucella* organism was isolated from the routine samples.

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

Campylobacter Research Laboratory

The laboratory's project is on "Isolation and molecular characterization of *Campylobacter* species from animals in Nigeria". To achieve this, activities carried out in 2013 were isolation of *Campylobacter* species from poultry and dogs in plateau state, culture of referral samples for *Campylobacter* and molecular characterization of *Campylobacter* isolates. Out of 25 referral samples processed, 8 (32%) were positive for *Campylobacter* spp. Ninety six (96) samples from dogs and poultry had 36 (37.5%) being positive. Twenty (20) of the isolates were confirmed using PCR. Inadequate reagents for isolation and PCR was a challenge

Future plans

To continue isolation/molecular work and the genotyping of isolates to determine source attribution

Table 2: Referral Cases Received and Processed by BRD in 2013

S/N	Bacteria Isolated	Sample Type	No of Samples	No Positive	Percent Positive (%)
1	Brucella	Sera	258	23	8.9
		Milk	9	3	33.3
2	Mycoplasma	Sera	1337	242	18.1
		Tissues	192	17	8.6
3	Pasteurella	Tissues	11	2	18.2
4	Campylobacter	Faeces	25	8	32
5	Salmonella	Tissues/Faeces	187	8	4.3

BACTERIAL VACCINE PRODUCTION

Achievements

The Table below gives the total doses of bacterial vaccines produced in the year 2013 by the BVP division.

Table 3: Annual Production Record in Doses

MONTH	ASV	BV	BQV	CBPP	FCV	FTV	HSV	H/VAC	TOTAL
JAN	365200			813100	163600		29640		1371540
FEB			384000			760500	39240 51000	73640	1257380 51000
MAR	358400 370800				148000 209600	758100	30880	32640	1328020 580400
APR	359200			44300 397400		397000	26640		827140 397400
MAY			384000	401000	110000 119800		17080 23160	26400	938480 142960
JUNE		40140	345500	391400	130600	811700	22160		2102760
JULY	366000 366800			807300	118400 96400	760100	49880 31520		2101680 494720
AUG				805500	123000		45360		973860
SEPT	367200		412000	448000 304400	89600	386000	29960	32720	1765480 304400
OCT					158200			29960	188160
NOV			379000	440500	159600 173800	478300	40600	32240	1530240 173800
DEC	179600	441500		412200					853700
TOTAL	2733200	842900	1904500	5265100	1800600	4351700	437120	227600	17562720

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; H/vac-Hantavac vaccine

The total number of bacterial vaccine doses produced January – December in 2013 was 17,562,720 doses

Challenges

In the course of the year, the division had challenge with supply of bottles for wet vaccines and overhaul of the freeze drying machines which affected the production of the dry vaccines (CBPPV and FTV).

BIOCHEMISTRY

In order to carry out its assigned mandate, the Division is subdivided into four sections which are Clinical Biochemistry, Nutrition, Toxicology, and Drug Development section. Apart from carrying out research the division also renders service to the general public and farmers within and outside the community.

Activities/Achievements

The Division hosted and fully participated in mentoring Interns of the NEF/NVRI Toxicology Internship Programme which took place between May and August 2013. The division carried out and completed two projects, namely, 'Comparative studies on proximate composition of the eight most available corn varieties in Middle Belt Nigeria' and Anti-diarrheal and anti-motility studies of *Khaya senegalensis* and *Acacia siberiana*.

Routine Activities

A total of One hundred and twenty (120) samples were analysed for anti-nutritional factors, electrolytes, phytochemicals and heavy metals. Proximate analysis of samples such as feed, concentrates, leaves among other samples was carried out on 316 samples. Out of the 316 samples, 237 were commercial and 79 were research samples of the Institute. Also, 118 samples of body fluids and water for clinical biochemical analyses were received and analyzed for different tests. A total of 398 water samples from the Institute reservoir were analyzed during the year to ensure the cleanliness and potability for Laboratory use and consumption by staff in quarters.

Training

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

A staff of the division who attended an up-date training on Auto Analyzers in Lagos during the year, has trained other members of the division on the use of the divisional chemistry auto analyzer.

Challenges

Challenges faced in the course of the year are as listed below.

1. Atomic Absorption Spectrophotometer – Lack of Standards for the most part of the year and troubleshooting problems with running this machine were a major setback in its full utilization, but these have been overcome.
2. Freeze dryer-This equipment has been installed but needs a very strong Unlimited Power Supply (UPS) back up as power surge could damage it.
3. Reagents and tests kit- Non availability of reagents and tests kit was responsible for the low number of samples analyzed as some clients had to be turned down
4. Water monitoring- Lack of constant water in the reservoir hampered our routine water monitoring as pumps in the dams and boreholes were broken down.
5. Distilled water production - Lack of good water pressure for production of distilled water was experienced during the year

Future Plans

In 2014, the division plans to undertake the listed projects;

- a) Determination of anti-nutritional, phytochemical and toxicity profile of some dry-season browse plants found in Bauchi and Plateau States
- b) Establishment of biochemical and haematological reference values (ranges) in apparently healthy livestock and poultry in National Veterinary Research Institute Vom and environs among others.
- c) The project, 'Anti-diarrheal and Anti-motility studies of *Khaya senegalensis* and *Acacia siberiana* is on-going and will continue in 2014

DAGWOM FARM

Introduction

Dagwom farm division has the following four sections: Feed mill, Rabbitry, Fabrication and Stores. The division carried out the following activities in 2013:

- 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.

Kerosene Incubators Produced and Sold in 2013

Quarter	Stock Balance 2012	No. Constructed	Target	No. Sold	Cost (₦)
1 ST	4	Nil	33	9	395,000.00
2 ND	-	20	33	1	45,000.00
3 RD	-	20	33	18	810,000.00
4 TH	-	Nil	33	16	720,000.00
Total		40	132	44	₦1,970,000.00

Materials Issued from Stores Section for Dagwom Farm /Lid in 2013.

S/No	Items	Qty Received (Kg)	Qty Issued (Kg)	Unit Price (N)	Amount (N)	Stock Balance (Kg)
1	Maize	300,000	337,338.19	110	37,107,200.9	5,663.09
2	Soya beans	131,248.5	133,367	150	20,005,050	26,609
3	Wheat offal	124,000	118,700	75	8,902,500	54,850
4	Limes stone	30,000	26,700.25	40	1,068,010	12,687.75
5	Bone meal	30,000	23,154.55	75	1,736,591.25	14,410.35
6	Methionine	475	594.41	2,250	1,337,422.5	50.0
7	Lysine	375	529.85	2,100	1,112,685	Out of stock
8	Common salt	2,500	4,279.625	79.4	339,802.2	872.2
9	Fish meal	600	684.4	1,150	745,660	100.0
10	Toxynil		50.0	1,156	57,800	Out of stock
11	Mycotoxin binder	325	92.63	1,575	145,892.2	200.0
12	Nutrizyme	105	102.629	1,687.5	173,186.4	Out of stock
13	Chick Premix	150	240.125	1,250	300,156.25	75.0
14	Grower Premix	195	267.5	950	254,125	2.5
15	Layer Premix	425	465.625	940	437,687.5	6.875
16	Breeder Premix	250	255.0	1,650	420,750	72.5
17	Empty bags	25,000(no's)	22,017	62	1,365,054	10,106
18	Broiler Starter	-	-	-	-	Out of stock
19	Broiler finisher	50	62.5	930	54,637.5	7.5
	TOTAL				₦75,564,210.7	

Challenges/Constraints

- Old and inadequate feed mill and fabrication equipment which reduces productivity, quality and increase cost.
- Inadequate staff office accommodation which dampens staff morale
- Inadequate feed ingredient storage facilities
- Lack of livestock and poultry performance records from user Divisions
- Lack of a weigh bridge with leading to poor estimates of actual quantities of raw materials (feedstuffs) received from suppliers.
- Lack of divisional vehicle causing delay in farm operations
- Lack of grain pre-cleaning machine with adoption of the laborious manual cleaning of grains and feedstuff before storage.
- Delay in fund release to purchase incubator materials which encourages long delay of products release to customers

The Way Forward/Future Plan

- The purchase of Goulotine, folding, Rolling and wood work multi-purpose machines, for efficiency and high product products.
- Renovation of store houses to improve grains' storage condition.
- Renovation of the fabrication workshop
- Renovation of the old grain silo in Dagwom Farm
- To Link Dagwom farm with the Institute's main water works for adequate water supply
- Quality control of raw materials and finished feeds in collaboration with Biochemistry Department of the Institute
- Renovation of the feed mill, detaching it from offices
- Commercial production of mash feeds and rabbit pellets, full fat and soya bean cake
- Additional purchase of hutches with fifty units standard galvanized cages (250 hutches)

DERMATOPHILOSIS RESEARCH LABORATORY

The main functions and Mandate of the unit include;

1. Research into the causative agent of dermatophilosis, its biology, characteristics, immunology and molecular biology.
2. Research into the disease in different domestic animals, its pathogenesis, epidemiology and economic effects.
3. Research into the contributions of other pathogenic agents such as fungi into the pathogenesis of the disease in animals and humans.

The main activities in the unit included;

The unit has continued to service the needs of the community in the diagnosis of mycological conditions in humans and the production of various ethno-veterinary and human products for the relieve of fungal conditions in humans and animals.

Referral samples from the Veterinary Clinic, Diagnostic division and viral research, for diagnosis of *Dermatophilus congolensis* and fungi were received and treated.

Postgraduate students from various Universities have continued to be assisted in the pursuance of their project works. Students of the membership of the College of Veterinary Surgeons Nigeria (CVSN) were also assisted in the unit.

The Research on Dermatophilosis has slow down because of lack of staff, but with the arrival of two new staff it is hoped that research on the disease will pick up.

Achievements

A total of 403 persons visited the unit and 21 different mycotic agents were diagnosed in the unit in the year 2013. Twenty referral samples were also processed during the year

Ethno-Veterinary Products

In the course of the year under review, the unit was able to produce the under listed ethno-products:

- a) 350 litres of Lamstreptocide A & B
- b) 2,300 of Dermatocide 3M soaps
- c) 200 small cream
- d) 350 big cream and
- e) 350 bottles of lotion

Constraints

Adequate and timely provision of raw materials has been a major challenge in the production of the products.

DIAGNOSTIC

The Diagnostic division has seven (7) sections and four (4) units that contribute significantly to the institute's roles as a national laboratory and regional lab for Avian Influenza and other Trans-boundary Animal Diseases for West and Central Africa. The division carries out clinical outreaches (ambulatory services) to farms, diagnosis of emerging and re-emerging diseases and surveillance activities within the nation

The division received and processed 869 cases in 2013. These comprised of 464 avian, 44 bovine, 249 canine, 32 ovine, 23 caprine, seven porcine, three equine, five feline, 49 laprine, and one wildlife case. Major diseases diagnosed in avian species include; fowl typhoid, fowl cholera, fowl pox, Gumboro, Mareks and coliform infections. Bacterial septicaemias, Mastitis, and Mycosis were mostly seen in bovine species. In domestic dogs, most frequently diagnosed diseases were rabies, leptospirosis, babesiosis, and parvoviral enteritis. Major problems recorded in small ruminants include Salmonellosis, Cowdriosis, mycosis, Pulpy kidney disease and contagious pleuropneumonia. Parasitic gastroenteritis and mange were the major maladies diagnosed in laboratory animals.

Out a total of two hundred and forty nine (249) suspected rabies specimens processed in 2013; 103 (41.4%) were confirmed positive for rabies while the remainig 146 specimens were negative. Of the positive cases, 102 (99%) were from domestic dogs and one case from cattle.

As part of the post twinning activities with the OIE rabies Reference Laboratory at Onderstepoort Veterinary Institute (OVI), South Africa a 5-day training program on PCR for rabies diagnosis was organized by Dr Claude Sabeta and his team from OVI, South Africa.

The rabies laboratory in NVRI also participated in and passed the annual proficiency test for FAT conducted by Nancy Laboratory, France for over 50 laboratories globally.

An in-house training on Direct Rapid Immunohistochemical Test (dRIT) for staff of rabies laboratory and others was conducted by Dr Garba Ahmed who had spent nine months at the Centre for Disease Control (CDC), Atlanta Georgia USA. The training took place in the Institute September 30 –October 4, 2013.

The division produced 2,165 mice, 517 Albino rats and 15 rabbits in the course of the year. These animals were distributed to various divisions for use in research and diagnosis. One thousand two hundred and ninety seven (1,297) mice were used for mice inoculation test (MIT) for rabies diagnosis, 50 for bacterial vaccine testing, while 190 were supplied for research activities in the Institute. Apart from these, a total of 628 mice, 467 rats and 2 rabbits were sold to researchers from outside of the Institute. The division generated the sum of one hundred and seventy three thousand, two hundred naira (₦173,200) as revenue in the year 2013.

Most of the cases and samples handled in the year under review were received from states contiguous to the Institute. Though the division has been processing cases at no cost to clients, yet many states have not been sending samples to the Institute, possibly due to transport costs. This is a serious challenge to the Institute and the nation at large because it makes for paucity of information on the disease situation in animals in the country.

Table 4: Samples received from different States of Nigeria in the year 2013+

STATE	SPECIES												Total
	Avian	Bovine	Canine	Caprine	Equine	Feline	Laprine	Ovine	Water /Feed	Porcine	Wildlife	Biological	
Abia	-	-	-	-	1	-	-	-	-	1	-	-	2
Adamawa	-	-	-	-	-	-	-	-	-	-	-	-	0
Akwa Ibom	-	-	-	-	-	-	-	-	-	-	-	-	0
Anambra	-	-	-	-	-	-	-	-	-	-	-	-	0
Bauchi	13	2	4	-	-	-	-	-	-	-	-	-	19
Bayelsa	-	-	-	-	-	-	-	-	-	-	-	-	0
Benue	4	-	1	3	-	-	1	-	-	-	-	-	9
Borno	-	-	-	-	-	-	-	-	-	-	-	-	0
Cross River	1	-	1	-	-	-	-	-	-	-	-	-	2
Delta	-	-	-	-	-	-	-	-	-	-	-	-	0
Ebonyi	1	-	-	-	-	-	-	-	-	2	-	-	3
Edo	2	-	-	-	-	-	-	-	-	-	-	-	2
Ekiti	-	-	-	-	-	-	-	-	-	-	-	-	0
Enugu	-	1	-	-	-	1	-	-	-	-	-	-	2
FCT	22	3	4	-	1	1	-	-	-	1	-	-	32
Gombe	1	-	-	-	-	-	-	-	-	-	-	-	1
Imo	-	-	-	-	-	-	-	-	-	-	-	-	0
Jigawa	5	-	-	-	-	-	-	-	-	-	-	-	5
Kaduna	8	2	11	1	-	-	1	-	-	-	-	1	24
Kano	1	-	-	1	-	-	-	-	-	-	-	-	2
Katsina	-	-	-	-	-	-	-	-	-	-	-	-	0
Kebbi	-	-	-	-	-	-	-	-	-	-	-	-	0
Kogi	2	-	-	-	-	-	-	-	-	-	-	-	2
Kwara	-	-	-	-	-	-	-	-	-	-	-	-	0
Lagos	-	-	-	-	-	-	-	-	-	-	-	-	0
Nasarawa	22	2	-	-	-	-	-	1	2	-	-	-	27
Niger	7	-	1	-	-	-	-	-	-	-	-	-	8
Ogun	-	-	-	-	-	-	-	-	-	-	-	-	0
Ondo	-	-	-	-	-	-	-	-	-	-	-	-	0
Osun	-	-	-	-	-	-	-	-	-	-	-	-	0
Oyo	-	-	-	-	-	-	-	-	-	-	-	-	0

Plateau*	374	33	202	18	1	3	47	31	7	3	1	7	727
Rivers	-	-	-	-	-	-	-	-	-	-	-	-	0
Sokoto	1	-	-	-	-	-	-	-	-	-	-	-	1
Taraba	-	1	-	-	-	-	-	-	-	-	-	-	1
Yobe	-	-	-	-	-	-	-	-	-	-	-	-	0
Zamfara	-	-	-	-	-	-	-	-	-	-	-	-	0
Total	464	44	224	23	3	5	49	32	9	7	1	8	869

FINANCE AND ACCOUNTS

Presently, the Directorate has 70 members of staff made up of 58 in Vom and 12 in the Outstation Laboratories.

Accomplishments in year 2013

Budget:

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

In the year 2013 the following were the Institute's requirement:

i. Capital	=	3,035,400,000.00
ii. Other Charges	=	722,000,000.00
iii. Personnel Emolument	=	928,399,130.23

The amount appropriated is as follows:

i. Capital	=	513,397,187.00
ii. Other Charges	=	274,482,989.00
iii. Personnel Emolument	=	2,022,013,414.00

However it was later amended as follows:

i. Capital	=	413,397,187.00
ii. Other Charges	=	274,482,989.00
iii. Personnel Emolument	=	2,060,486,562.00

Internally Generated Revenue

Table 5: Revenue generated internally in 2013

INTERNALLY GENERATED REVENUE		
1	Vaccine Production	124,742,150.00
2	Biochemistry	937,850.00
3	Bacteriology	67,100.00
4	Contract Registration /Tender	57,500.00
5	Cyber Café	105,875.00
6	Dagwom Farm / LID	3,067,468.70
7	Dermatophilosis	585,300.00
8	Diagnostic/ Lab Analysis	83,000.00
9	Guest House	14,614,255.00
10	Small Animal	104,200.00
11	LID	4,844,780.00
12	Virology	2,400.00
13	Other Incomes	167,800.00
14	Poultry	5,841,750.00
15	Press	350,700.00
16	Rent	6,565,498.64
17	Staff School	-
18	Veterinary Journal	-
	TOTAL INCOME	<u>162,137,627.34</u>

Integrated Payroll and Personnel Information System (IPPIS)

The Integrated Payroll and Personnel Information System (IPPIS) is in progress and has reached an advanced stage as over 99% of the staff of the

Institute have been captured. Effective date of implementation is expected to be February 2014.

INTERNAL AUDIT

Introduction:

Every self accounting Unit like NVRI, is expected to establish and operate an Internal Audit Unit as provided in the Financial Regulation. This is to provide a complete and continuous audit of the accounts and records of revenue and expenditures of the Institute

Achievements:

In the year 2013, the under listed achievements were recorded by the Internal Audit Division

1. The Division was able to carry out 100% checks on all vouchers sent to it by the Accounts Division. Also the monthly checking of the pay roll was done throughout the year to ensure that each staff gets his/her actual salary (Prepayment Audit).
2. Random samples of paid voucher's were taken to ensure that the right persons and the correct amounts were paid and complete documents are attached (Post-payment Audit).
3. Revenue Generating areas like Poultry, Dagwom Farm Vaccine sales Unit, Cyber Cafe, Printing Press, Guesthouse and L.I.D. were properly checked to ensure accuracy and completeness of records.
4. For Personnel Audit, the staff nominal roll as well a payroll was checked to ensure that they tally with each other.
5. Verification of procurements was done to ensure that the items conform to the requirements on the Contract Agreements. These were done with the Procurement Committee.
6. Verification of the payments of Pensions was also done to ensure every Pensioner got his/her rightful entitlement based on what was released

from the Insurance Company. This is applicable only to those who retired under the old pension Scheme.

7. Operational Audit: - Evaluation of the efficiency of the operations were carried out and recommendations made to the executive Director on ways to improve efficiency and boost revenue generation.

Challenges

Many staff do not understand the functions of the Internal Audit. There is therefore need for more enlightenment.

Future Plan

In the coming year, the division plans to broaden scope of coverage by visiting the outstation Laboratories. These areas have not been covered for more than 3 years. With the co-operation of all Departments, the Internal Audit Division plans to be timelier in producing periodic Audit Report for the Management.

LIBRARY AND DOCUMENTATION

In the year 2013, the library continued to be very active in providing services for the needs of research staff and students (on referral). The Division had various service points comprising Circulation/ Reference Section, Technical Services Section, Serial Section and E-Library and all the sections were active in the course of the year

The interlibrary cooperation with other libraries was facilitated by allowing users from other institutions to use the library. New textbooks were added to the library collections in 2013. The Technical Service section was able to catalogue a total of forty-four (44) books. At present the library is engaged in bar-coding of library holdings. Ten (10) journal titles were added to the collections in 2013. The list of the new journal titles received was circulated to Research Departments for notice. Reference and bibliographic services were provided through research queries received. Through its Electronic Library Section, the library provided scientific information from CD-ROMs and the internet to researchers from AGORA, HINARI, OARE and JStor web portals.

Constraints/ Challenges

- One user license: The installation of Liberty3 library software which was along purchased with one user license makes the retrospective conversion of library holdings very slow and cumbersome. It does not allow more than one person to work at a time.
- Poor internet service.
- Inadequate number of functional computers in the e-library for internet browsing by staff

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

LIVESTOCK INVESTIGATION

The Livestock Investigation Division has mandate for raising animal for vaccine production and testing, animal disease diagnosis and research.

Also, it engages in the introduction and adaptation of exotic breeds animals for improved meat and milk production and development of pastures and forage. To achieve its mandate, the division has the following sections:

Dairy, Beef, Small ruminant, Lab-cattle and Replacement, Monogastric and Artificial Insemination (AI). Others are Feed mill, Cultivation and pasture development, Farm Machinery and Agronomy. The farm is thus stocked with cattle, sheep, goats and horses.

Artificial Insemination Section

The section is engaged in the management of exotic Friesian bulls, collection of semen for processing and preservation. It has a total of 13 animals comprised of Friesian adult bulls and Friesian X Bunaji crosses.

Beef Section

In the year under review the section had a total number of 187 animals with 28 calvings and loss of 12 calves.

The unit provided blood for research purposes.

Dairy Section

Dairy section has a total number of 64 animals which include 9 milkers and others of varying ages. The total milk yield was 11,532 litres. 34 calvings were recorded.

Farm Machinery/ Forage Conservation

This section was able to produce 1,065 metric tons of silage cultivated in 32 hectares of land and 1,200 bales of hay bailed from the Institute paddocks. The section was able to provide a uniform and year round supply of forage for livestock animals.

Feed Mill and Nutrition

This section is responsible for the formulation of feed for the animals on the farm. The total production for the year was 290,830 tons. A total of 290,510 tons was supplied to the different sections as shown in the table below:

Table 6: Feed supplied by LID to Units in 2013

S/N	Animal Section	Total Quantity of Feed Supplied (year)
1	Milkers	16,715
2	Beef	158,430
3	Dairy	64,623.4
4	Lab cattle	65,880
5	AI (bull)	15,984.5
6	Sheep/goats	20,608.49
7	Equine/horses	15,971.6
8	Vaccine animals	9,611.4
9	Fattening	12,807.49
10	LAES	6,378.24
11	Medical Lab	950
12	Young calve	2,480
13	Mini college animal	70
TOTAL		290,510.12

Health Section

This section oversees the health of all livestock on the farm. During the period under review animals were routinely sprayed/dipped, dewormed, and vaccinated against common diseases such as CBPP, Haemorrhagic septicaemia, Black quarter, Clostridial infection and PPR for small ruminants. Disease conditions that affected the animals in the course of the year are as shown in the table below

Table 7: Diseases diagnosed in animals of LID in 2013

S/N	Disease condition	Animals affected				
		Bovine	Ovine	Caprine	Equine	Total
1	Babesiosis	10	3	2	-	15
2	Foot rot	2	40	-	-	42
3	Fractures	2	4	-	-	6
4	Dermatophilosis	5	-	-	-	5
5	Trypanosomosis	7	-	-	-	7
6	Helminthiasis	15	45	10	4	74
7	Bloat	6	3	1	1	11
8	Pink eye	3	-	-	-	3
9	Bottle jaw	5	3	-	-	8
10	Retained placenta	10	-	-	-	10
11	Abscess	9	6	2	3	20
12	Pneumonia	10	30	6	8	54
13	PPR	-	5	-	-	5
14	Cowdriosis	2	-	-	-	2
15	Trauma	4	1	1	2	8
16	Mastitis	5	2	1	-	8
17	Black leg	1	-	-	-	1
18	Snake bite	2	-	-	-	2
19	Mange	-	10	-	-	10
20	Papillomatosis	3	-	-	-	3

21	Brucellosis	10	-	-	-	10
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Lab Cattle and Replacement Stock

During the year, the section sold 20 FR X BJ bulls to farmers for the upgrading of indigenous breeds. The animal population in the unit at the end of the year was 102.

Monogastric section

The unit has 15 horses which provides blood for vaccine production, research and student training.

Pasture and Seed Development Section

This unit established various pastures and paddocks with Rhodes grass, (*chlori gayana*) signal grass (*Bracharia decumbens*), urea grass (*panicum maximum*). It also sows some legumes at various paddocks.

OUTSTATION LABORATORIES

These Laboratories which serve as satellite laboratories were established to extend the Institute's mandate to different parts of the country. They are therefore engaged in animal disease investigation and diagnosis, treatment and control, vaccine dissemination to contiguous States and the collection of referral samples to the Institute. The Outstation Laboratories consist of six Zonal and 17 State laboratories (table below):

S/No	Zones	Zonal Headquarters	Laboratory Locations
1.	Institute Headquarter	Vom*	Abuja, Bauchi, Keffi, Makurdi, Shendam
2.	North East	Yola	Jalingo, Maiduguri, Yola
3.	North West-1	Kano	Kaduna, Kano, Katsina
4.	North West-2	Birnin Kebbi	Birnin Kebbi, Sokoto
5.	South East	Umudike	Oji-River, Umudike
6.	South South	Calabar	Calabar, Uyo
7.	South West	Akure	Akure, Benin, Ibadan, Ikire, Ilorin, Lagos

*Vom takes care of contiguous Outstation Laboratories

Activities

The following activities were carried out by the Outstation Laboratories in the year 2013:

- 1) Animal disease diagnosis and investigation
- 2) Veterinary clinical outreach to livestock and poultry farms
- 3) Sale of NVRI-produced vaccines to State Governments, Private Veterinarians and other stakeholders
- 4) Collection of surveillance and referral samples for confirmatory diagnosis in Vom

- 5) Other ad-hoc activities as assigned by the Executive Director or the Director of Diagnostic and Extension Services.

Achievements

The Institute's Outstation Laboratories through their services complemented the Veterinary activities of the various States where they are located and those contiguous to them. These they did by making available relevant NVRI produced veterinary vaccines and assisted in veterinary services by conducting laboratory based diagnosis of bacterial and parasitic diseases.

The Outstation laboratories in the 23 States of the country were able to generate revenue to the tune of forty million, three hundred and ninety seven thousand two hundred naira (**₦40, 397,200.00**) from vaccine sales only. This represents about 25% of the total Internally Generated Revenue (IGR) of the Institute for the year 2013. They also succeeded in maintaining the good relationship between the Institute, the States and other stakeholders in the livestock subsector.

Challenges

- 1) Lack of full complement of staff in some laboratories
- 2) Lack of mobility for prompt ambulatory services
- 3) Lack of vital equipments, chemicals and reagents for standard laboratory activities in some of the labs
- 4) Lack of laboratory/office furniture
- 5) Lack of potable water in some of the laboratories for good microbiological activities
- 6) Inadequate vaccine supply which gives Outstation Laboratories poor image before the States and farmers

Way Forward

It will be appreciated if in 2014 Management will enhance the capacity of Outstation laboratories through:

- a) Provision of basic equipment such as incubators, autoclave, digital weighing balances, etc
- b) Provision of reagents, chemical and media for basic diagnostic bacteriology and parasitology
- c) Engagement of essential laboratory personnel, e.g. medical lab scientists, technicians and assistants for the processing of diagnostic samples
- d) Provision of vehicles to enhance mobility for Veterinary clinical outreach to farms
- e) Better funding of Outstations Laboratories to enhance efficient services to livestock and poultry farms

8.

PARASITOLOGY

The Division is charged with the responsibility of conducting research and diagnosis of economically important parasitic diseases of livestock and poultry as well as the development of their treatment and control strategies.

The Division has four sections, namely, protozoology, helminthology, molecular parasitology and entomology.

2013 Activities:

In the year under review, a total of 196 blood samples from different animal species were received for diagnosis out of which 34 were positive for various parasite species as shown in the table below.

Table 8: Parasites identified from different animal species.

Animal species	Number of samples	Number positive	Parasites identified
Ovine	23	2	<i>Babesia motasi</i>
Bovine	127	23	<i>Babesia bigemina</i> <i>B. bovis</i> , <i>Trypanosoma spp</i>
Canine	24	9	<i>Babesia canis</i>
Caprine	18		-
Laprine	1		-
Equine	1		-
Wildlife	2		<i>Cowdria ruminantum</i>
TOTAL	196	34	

In the helminthology section, 299 faecal samples were processed for diagnosis and parasites identified are as shown in the table below.

Table 9: Faecal samples and parasites identified from various animal species.

Animal species	Number of samples	Number positive	Parasites found
Avian	118	14	<i>Eimeria</i> spp <i>Ascaridia gali</i>
Bovine	105	1	<i>Oesophagostomium</i> spp. <i>Paramphistomium cervi</i>
Ovine	38	6	<i>Oesophagostomum</i> spp, <i>Trichostrongylus</i> spp, <i>Haemonchus</i> spp, <i>Paramphistomum</i> spp <i>Taenia hydatigena</i> cyst
Caprine	5	2	<i>Haemonchus</i> spp <i>Oesophagostomum</i> spp <i>Multiceps multiceps</i> cyst
Laprine	11	4	<i>Eimeria</i> spp
Wildlife	3	1	<i>Trichostrongylus</i> spp, <i>Cysticercus tenicollis</i>
Canine	12	2	<i>Ancylostoma caninum</i>
Porcine	7	0	-
TOTAL	299	30	

A total of 42 skin scrapings were presented to the Entomology Unit for diagnosis from various animals. The results are summarized in the table below:

Table 10: Ectoparasites identified from various animal species.

Animal species	Number of samples	Number Identified	Parasites Species identified
Avian	16	4	<i>Menopon gallinae</i> <i>Goniocotes gigas</i> <i>Leperus coponis</i>
Bovine	15	6	<i>Amblyomma variegatum</i> <i>Boophilus spp</i>
Canine	2		<i>Rhipicephalus spp</i>
Caprine	5	3	<i>Rhipicephalus spp</i> <i>Sarcoptes mite</i>
Laprine	3	2	<i>Cheiletelia parasivora (furamic)</i> (mange mite)
Ovine	1	1	<i>Oestrus ovis</i>
TOTAL	42	16	

Staff Training and Conferences Attendance

Most staff of the division were privileged to attend various conferences, for development, within the country in the year 2013.

Constraints

The Division had been supplied with some modern diagnostic tools in molecular parasitology, but could not be put to full use due to lack of reagents and laboratory consumables.

PLANNING, MONITORING & EVALUATION DEPARTMENT

The Department serves as a Databank of the Institute. It is charged with the formulation, co-ordination, monitoring & evaluation of the Institute's projects and programmes. It also has 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 social-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), National Institute for Policy and Strategic Studies (NIPSS), Nigerian Communications Commission and other Government Agencies.

In the year under review, the databank unit also carried out the following activities;

- Updated the inventory of the Institute's landed properties all over the country
- 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 furniture is being created
- The Inventory of all the computers of the institute was updated
- Record of visits of dignitaries to the Institute was updated

The Planning Division of the Department coordinated the publication of “*NVRI Profile*”, a revised edition of the ‘*Historical perspectives*’ of the National Veterinary Research Institute, Vom featuring the past, present and future

activities of the Institute. Similarly, the Division also coordinated the video shooting of a documentary, “To chronicle the success story of NVRI since inception” by Dum Wada Communication Ltd to refresh and further inform the public about NVRI and its latest achievements. In addition, the Division has obtained approval to publish “NVRI digest” as an additional instrument of publicity that will aid the Institute to showcase its activities to the general public every year.

Furthermore, the division has coordinated the designing and hosting of the Institute’s website and produced a web-base CD of the Institute’s publications to supplement the printed publications.

In 2013, 400 staff ID cards were produced by the Human Resource Unit of the division. The Statistics Section compiled and analyzed the vaccine data supplied by the Bacterial and Viral vaccine production divisions of the Institute. The figures below show the vaccine production charts for the year under review.

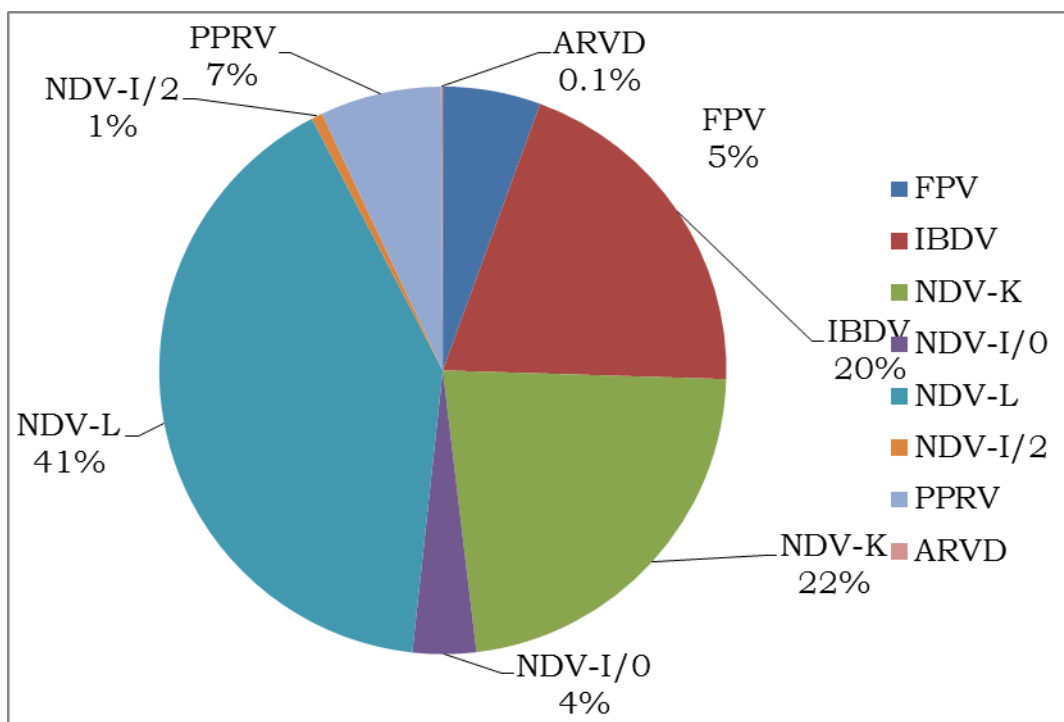


Fig.5: Viral Vaccine Production Chart

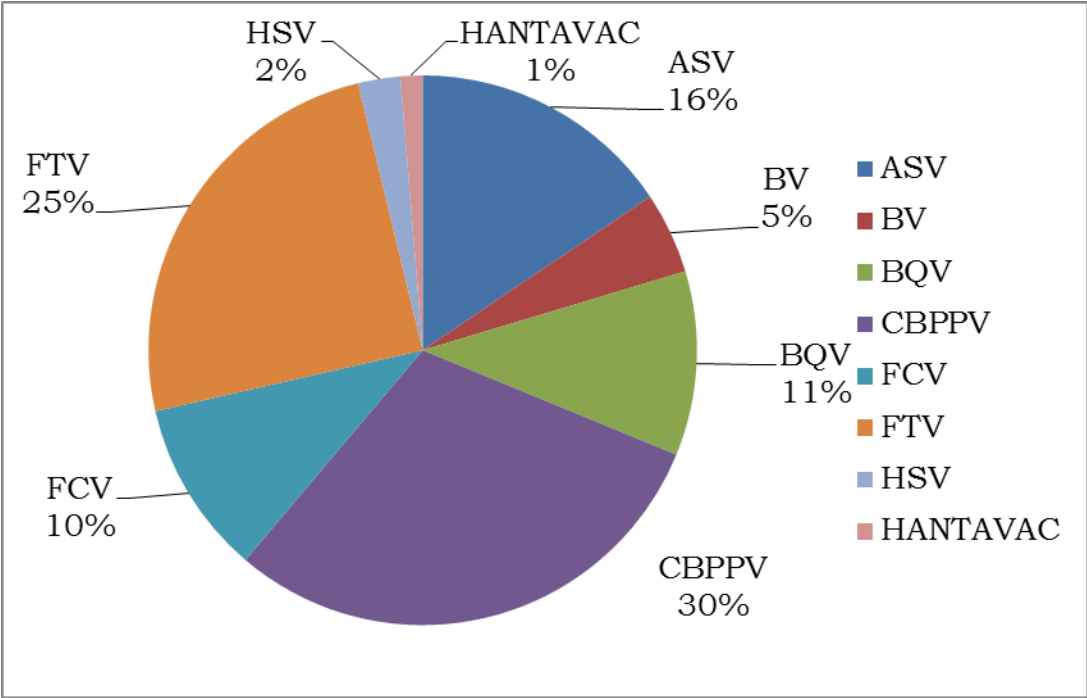


Fig. 6: Bacterial Vaccine Production Chart

Note: The total vaccine production figure is 57,441,162 doses.

Contributory Pension Scheme

1. Data of NVRI Staff due to retire between January and December 2014 was submitted to PENCOM on 28th February 2013. The submission was in accordance with PENCOM required format for the purpose of organizing verification and enrolment exercise for the affected persons.

2. NVRI staff due to retire between January to December 2014 were presented for verification and enrolment exercise by PENCOM in Makurdi on 13th June, 2013.
3. Delayed payments of retirement benefits of some retired and disengaged staff of NVRI were properly addressed.
4. Payments of deceased staff pension contributions to their respective Next-of-Kin were processed.
5. Problem of 'zero balance' in Retirement Saving Accounts of affected staff who reported their cases was adequately addressed.
6. Interactive/Sensitization seminar on Retirement Annuity Plan to all staff was presented by AIICO Insurance Company on 10th July, 2013.
7. Enlightenment of all NVRI Staff on Staff Contribution and other matters under the New Pension Scheme by SIGMA Pensions Ltd took place on 12th November, 2013.
8. Pre-retirement training involving some staff of the Institute that retired in 2013 by Bureau of Public Service Reform took place in Gombe, Gombe State from 25th – 29th November, 2013.
9. Non remittance of staff additional contribution due to 2012 annual increment and promotion for affected staff members was adequately addressed

Monitoring and Evaluation Unit: Attempts have been made to do a schematic Evaluation of Institute reports contained in “annual reports” over the past ten years; 2001-2010. The study is not yet completed but initial perceptions indicate that over 90% of the reports turned in from Departments and Divisions are Monitoring in context. The report does not contain measurable evaluative contents. Commendation must be offered to Management for various attempts being made in form of training workshops and seminars to increase

the statistical awareness of research staff. We hope that the investments will translate to research reports that provide Evaluative information.

The Fire Committee took care of Institute fire fighting equipments. A total of 158 units of Fire Extinguishers in the Institute were serviced and maintained in the 2nd quarter of the year. A few cases of fire incidents were promptly brought under control. With the retirement of the Chairman from service, the fire committee has been reconstituted. The secretariat of the committee is now domiciled in Administration Department.

The **National Health Insurance Scheme Unit:** During the year under review, a total of 109 staff registered with the NHIS, 65 staff added more dependants, 36 changed their Primary Healthcare Providers, and only 5 members of staff received a total of 20 cards. 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. Every quarter, the updated NHIS list is obtained, payments of additional dependants and replacements of ID cards are now made through lodgments in NHIS Bank Accounts unlike Cash and Drafts in the past. On 11th and 12th July, the Institute's Health Maintenance Organization (HMO) and International Health Management Services (IHMS) were in the Institute to further enlighten staff on the scheme and address problems and questions of staff. On 26th June, the management of Mandela Klinik had an interactive session with enrollees of the clinic to discuss how the clinic could serve them better.

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.

In the year under review, the unit was unable to conduct 2013 capital Projects due to lack of funds release from the Federal government.

The unit has four [4] Certified Procurement Officer[s] who have passed the Conversion Examination conducted by the Bureau of Public Procurement in July and September, 2013 at ASCON Badagry. They are:

- | | |
|-----------------------|-----------------|
| 1. Dr. T. M. Joannis | CPPO/2013/207 |
| 2. Mrs. M. M. Makoshi | CPPO/2013-2/086 |
| 3. Engr. D. Shok | CPPO/2013-2/145 |
| 4. Mr. M. D. Bako | CPPO/2013-2/038 |

CYBER CAFÉ UNIT

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

Basic activities the team carried out in 2013 include:

- I. Managed the Institute's server located at the Administration building.
- II. Connected different offices and laboratories to the internet, re-structured the network and other hardware infrastructure on ground for improved service delivery.
- III. Reduced the response time to connectivity problems to the barest minimum.
- IV. Created official emails with "NVRI" domain addresses for staff.

- V. Integrated Personnel Payroll Information System (IPPIS) online registration for entire staff.
- VI. Installed and upgraded software on personnel computers.
- VII. Scanned and printed documents.
- VIII. Provided internet access and assisted users.
- IX. Troubleshooting and Resolved IT related problems.
- X. Attended ICT meetings/presentations and deliberated on IT related issues as a team.

The team experienced some constraints such as:

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

During the year under review, six staff (3 Program Analysts, 1 Graphic Artist, 1 Chief Planning Officer and 1 Veterinary Research Officer) attended a four week intensive hands on training for Website design and development using a CSS platform. At the end of the training, the 'Website Management Committee' through the knowledge gained by the staff redesigned, developed, hosted and is currently managing the NVRI Website (www.nvri.gov.ng)

Future Plans

- a. To establish effective and efficient information systems to manage the Institute's database.
- b. 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.

- c. N.V.R.I SERVICOM Unit to be the vehicle on which the staff of the Institute drives their Mandate for providing improved and qualitative services.

POULTRY

In the course of the year, the specific activities that took place in the division were, (a) Production of fertile eggs/birds for vaccines production and Research, (b) production of different species of birds for research and (c) management of the NVRI/GCL Collaborative experiments. Some of the experiments carried out by the collaboration includes (a) Cassava as a substitute for maize in broiler feed, (b) Moringa leaf meal supplementation of cassava based broiler feed, (c) Feed performance and enzyme trials (layers), (d) Feed performance and enzyme trials (broilers) and (e) Feed performance and toxin binder trials (broilers)

Achievements

- a. Vaccine birds were procured which has increased the vaccine eggs production.
- b. Renovation works on breeding cages in two of the houses were carried out at the vaccine birds section.
- c. Feeder guards and fecal collection trays were also made for the four breeding houses of the vaccine birds section.
- d. Thousands of quail birds and eggs were produced and disposed with products such as meat and eggs from other species of birds raised in the farm during the year.

Challenges

- a. Bore holes at the vaccine birds section have not been working.
- b. The research birds' hatchery, damaged by rain storm, is yet to be repaired.
- c. Incubators at the research birds' section are old and obsolete, requiring replacement.
- d. Lack of a mini poultry processing plant to meet the constant demand for dressed birds
- e. Admin block/ staff offices requiring renovation
- f. Inadequate provision of drugs

- g. Lack of incinerator at the vaccine birds section which is a compromise to bio-security

Table 11: Chicken Egg Production in 2013

Month	Total Eggs Produced	Eggs broken	Hatching	Supply to Virology	Supply for B/Factory	Dead
JAN	40,403	7,000	Nil	23,730	3,540	4,633
FEB.	37,609	10,118	Nil	18,500	2,880	6,111
MAR.	66,933	13,476	360	14,000	10,560	28,477
APRIL	57,690	13,104	9,586	25,737	3,360	10,240
MAY	62,450	13,335	1000	28,830	8,010	14,475
JUNE	58,445	14,205	Nil	34,250	4,020	6,870
JULY	59,678	12,938	8,441	20,940	5,790	12,085
AUGUST	54,523	11,508	Nil	20,560	7,350	15,105
SEPT.	48,032	10,025	260	22,520	4,290	10,937
OCT.	41,552	9,331	1,640	15,240	7,890	6,245
NOV.	56,731	9,625	1,545	23,410	11,130	6,834
DEC.	62,574	14,233	1000	5,000	30,960	9,381
TOTAL	646,620	138,898	23,832	252,717	99,780	131,393

Table 12: Eggs Supplied for Various Vaccines in 2013

Month	NDV	Gumboro	FPV	ARV
JAN.	12,200	1,200	5,800	3,000
FEB.	9,000	1,200	3,400	4,000
MAR.	7,500	600	3,400	1,000
APRIL	12,000	1,200	7,337	4,000
MAY	18,000	1,800	4,800	2,000
JUNE	19,900	1,200	4,800	4,000
JULY	9,500	600	3,000	4,000
AUG.	8,050	1,200	5,000	4,000
SEPT.	11,580	600	4,000	3,000
OCT.	7,200	600	2,000	3,000
NOV.	12,760	1,800	2,000	4,000
DEC.	3,000	Nil	Nil	1,000
TOTAL	130,690	12,000	45,537	37,000

Table 13: Vaccine Eggs Supplied to various Laboratories in 2013

DATE	Viral Research	Viral Res.	QC.
JAN.	900	Nil	630
FEB.	900	Nil	Nil
MAR.	1,500	Nil	Nil
APRIL	1,200	Nil	Nil
MAY	1,200	400	630
JUNE	1,200	2,100	1050
JULY	1,200	1,800	840
AUG.	300	1,800	210
SEPT.	900	1,600	840
OCT.	Nil	1,600	840
NOV.	Nil	1,800	1,050
DEC.	Nil	1,000	Nil
TOTAL	9,300	12,100	6,090

PRINTING AND PUBLICATIONS

Preamble

The Printing and Publications Division of the National Veterinary Research Institute, Vom, was established as a Service Department of the Institute, to meet its numerous Printing requirements.

The following jobs were produced during the accounting year 2013. They are mostly official jobs and they were produced in-house.

Table 14: Institute's Jobs handled by the Printing and Publications Division in 2013

S/N	Job Title	Qty
1	Application forms	6,00
2	Annual Report	350
3	Obituary poster/programme (Mr. Yusuf Zal)	1000
4	Vom Journal	300
5	Official File	5000
6	Seminar Series	250
7	APER forms for FCAH&PT	2000
8	Quail Production books	1000
9	Incubator Operation Manual	500
10	Official Letter Headed Paper & Envelops	1000 each
11	Annual Report 2012	300
12	Veterinary Register for NVMA	2000
13	NVRI Profile	1000
14	NDV 1 ² Labels	6700

Other Jobs

Table 15: External Jobs handled by the Printing and Publications Division in 2013

S/N	JOB TITLE	QTY
1	Certificate for NVRI staff School	1500
2	NVRI Staff School Admission Form	2000
3	Students Record File Medical Lab Tech. Vom	600
4	Text for the Training Log books	1000
5	Forms (Admission) for MLA & MLT	500
6	Admission forms for Fellow of FCVMLT	500
7	Admission Forms for FCAH&PT	1000
8	Admission Forms for FCAH&PT	2000/1000
9	Law book plate exposure (Barr. Yusuf Daden)	130 x 100
10	Cover impression full colour, (Barr. Yusuf Daden)	1000
11	Impression (Innocent Kovangiya & Co)	3000
12	Impression (Yerima Bitrus Fariku & Co	250

Challenges

- Shortage of technical staff
- Lack of modern printing equipment

Future Plan

- The Division needs more technical staff in the Offset and Lithographic sections.
- Modern printing equipment in order to keep abreast with the evolving trend in the print media technologies.

- To attend the annual book fair local/international printing exhibition/Expo where various printing machines and technologies are displayed live

New Appointment

The Division is happy to have two staff added to its work force:

Mr. Bashiru Bayari and Mr. Henry Adomoke

QUALITY CONTROL

Functions/Mandate

The Quality Control Division of the National Veterinary Research Institute has been mandated to ensure the implementation of a quality management system 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 done to ensure that they have been produced in accordance to Good Laboratory Practice, 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 for field use. Periodic assessment and auditing of all the institutes laboratories are performed to ensure Good Laboratory Practice measurable to international standards.

Specific activities

a) Vaccine Quality Control tests

A total of 67 batches of 8 Bacterial vaccines were subjected to quality control tests. These include Fowl cholera vaccine, Fowl typhoid vaccine, *Brucella abortus* vaccine and Haemorrhagic septicaemia vaccine. Others were Anthrax spore vaccine, Hantavac vaccine, Black quarter vaccine while *Contagious Bovine Pleuro Pneumonia Vaccine* was not tested due to unavailability of required critical working equipment. Other tests conducted include; purity, sterility, pH, temperature, vacuum and solubility during reconstitution were ascertained to be within standard values. All vaccines passed the stipulated quality control tests.

For viral vaccines, a total of 46 batches of 8 viral vaccines were received and tested. These include Newcastle disease vaccine I₂ (NDVI₂), Newcastle disease vaccine (Komarov), Newcastle disease vaccine (Lasota), Newcastle disease vaccine intraocular (NDV_{i/o}), Peste des Petits Ruminants virus

vaccine and Fowl pox vaccine. Others were Anti-Rabies vaccine, Infectious bursal disease vaccine. Vaccines not tested; PPR, FPV, ARV and IBDV due to lack of specialised equipment and media.

b) Expired Vaccines Submitted to the Stores Division

Expired reference vaccines samples, 611 Bacterial and 387 vials of viral vaccines were destroyed following audit by the Division and approval by the Executive Director. A Copy of the list of expired vaccines was each sent to the Audit Department and Central Stores Division for proper documentation.

c) External Quality Control of NVRI Vaccines

As a routine, several batches and quantities of the Institute's vaccines were sent to Pan Africa Veterinary Vaccine Centre (PANVAC), DebreZeit, Ethiopia for external quality control checks. All the vaccines sent to PANVAC passed the required Quality Control Tests.

d) Verification of Efficacy of Vinogumbocin^R

An antiviral drug Vinogumbocin was brought to the Division by Vinny Veterinary Clinic and Consult, Jalingo, Taraba State with claims of single therapy treatment of chickens infected with Gumboro. Tests are on going to verify this claim.

Training

The Division organised 4-day training on "Management of Equipment and Basic Metrology in Veterinary Laboratories". The training took place at the Quality Control Conference Room, National Veterinary Research Institute (NVRI) Vom from 19th to 22nd November 2013. All staff of Quality Control Division and representatives from all technical laboratories attended.

The staff of the division were able to attend conferences both locally and at international levels as part of the human resource development of the Institute.

Challenges

- Lack of a Divisional Secretary
- Lack of Equipment in the Molecular Biology Laboratory.
- Lack of essential equipment such as Vacuum pump for media filtration and Moisture Analyzer for moisture analysis content of freeze dried vaccines.
- Inadequate water supply.
- Need for a Biosafety cabinet and centrifuge for the Cell Culture laboratory.

REGIONAL LABORATORY FOR AVIAN INFLUENZA (AI) & OTHER TRANSBOUNDARY ANIMAL DISEASES (TAD)

Mandate

1. To conduct research into all aspects of influenza virus and other Transboundary animal diseases, their treatment and control
2. To carry out research and development of vaccines and biologicals
3. To provide surveillance and diagnosis services for avian viral diseases nationwide
4. To provide training for middle man power in veterinary laboratory and animal health technology
5. Initiate and maintain international networking and collaboration with research centres in Africa and beyond.

Notable Activities in the Year

In the year 2013, the laboratory carried out the under listed projects

Project I

Isolation, Serological and Molecular Characterization of Highly Pathogenic Avian Influenza (HPAI) Virus

The aim of the project is to obtain a disease free status for avian influenza in Nigeria to enable unhindered export of poultry and poultry products to the West and Central Africa sub region. The disease free status can only be accomplished by provision of data from surveillance studies to show that the disease has been controlled and eradicated from the country in its entirety. In pursuit of the object, a total of 174 diagnostic tissue samples comprising trachea, lung, liver, heart, spleen and intestine were received between January

and December 2013 through passive avian influenza surveillance and suspected cases of avian influenza across the country. Specimens were analysed by RT-PCR and virus isolation in embryonated chicken eggs. No avian influenza virus was detected from all the tissues samples received through passive and active surveillance as at 31st December 2013.

Inability to detect avian influenza virus from samples analysed from January to December 2013 is consistent with negative results returned since year 2009. The implication is that HPAI control in Nigeria is successful and all suspected cases by way of sample submission were negative. This supports the disease free status that can promote export trade for poultry products in the sub region

Project II

Isolation, Serology and Molecular Characterization of Avian viruses (Newcastle disease virus -NDV, Infectious bursal disease -IBDV etc)

The division carried out both passive and active surveillance of avian viral infections especially NDV and IBDV. One hundred and seventy four (174) NDV tissues were processed by RT-PCR and virus isolation while 18 Bursa of Fabricius were processed for IBD antigen detection by Agar Gel Immuno-diffusion technique (AGID). Out of these, 10 Newcastle Disease virus isolates and 19 RT-PCR positive Newcastle diseases were obtained. Three IBDV positive field antigens were obtained during the period of reporting Three IBDV positive field antigens were also obtained during the period of reporting. Serologically, 438 sera were analysed for NDV antibodies and 124 sera for IBDV antibodies.

Project III

Swine influenza surveillance in Nigeria

Samples were obtained from the swine population in the country. A total of 2,731 nasal swabs and 2,701 sera from nine selected states of the Federation were received in the laboratory. So far, only 1,370 swab samples have been

analysed. Three isolates of swine influenza virus subtype A/H1 were recovered from the samples. The isolation of A/H1virus from swine samples in our laboratory is an indication that the swine influenza virus is circulating in Nigeria. Active surveillance of pigs for influenza virus should be continuous because of its economic and public health significance and as recommended by WHO/OIE/FAO tripartite committee

Laboratory assistance to visiting students

The laboratory hosted and provided facilities and expertise for PhD students from Federal University of Agriculture, Makurdi and Ahmadu Bello University, Zaria who were conducting research on Newcastle Disease virus.

Table 16: Surveillance Samples Processed in 2013

Month	Number of samples			Number of positive (tissues)			Number of Negative (tissues)		
	AIV	NDV	IBDV	AIV	NDV	IBDV	AIV	NDV	IBDV
January	25*	25*	1* 24 ⁺	Nil	Nil	Nil	25	25	1
February	14*	14*	3*	Nil	1	1	14	13	2
March	3*	3*	Nil	Nil	Nil	Nil	3	3	Nil
April	29*	29*, 54 ⁺	Nil	Nil	Nil	Nil	29	29	Nil
May	14*	14*, 100 ⁺	1* 21 ⁺	Nil	1	1	14	13	Nil
June	8*	8*	3*, 20 ⁺	Nil	Nil	Nil	8	8	3
July	17*	17*, 25 ⁺	5*, 34 ⁺	Nil	Nil	Nil	17	17	5
August	21*	21*, 182 ⁺	Nil	Nil	18	Nil	21	3	Nil
September	13*	13*, 12 ⁺	2*	Nil	4	Nil	13	9	2
October	16*	16*, 65 ⁺	1*	Nil	4	Nil	16	12	1
November	7*	7*	2*, 25 ⁺	Nil	1	1	7	6	1
December	7*	7*	Nil	Nil	Nil	Nil	7	7	Nil
Total	174*	174*, 438⁺	18* 124⁺	Nil	29	3	174	145	15

Note: *tissues + sera

Challenges (other than funding)

- Lack of ELISA and HI reagents required for serological analysis of backlog of swine sera

Future Plan

- Surveillance/monitoring and diagnosis/research of avian and other animal influenza in Nigeria
- Surveillance of other avian and Transboundary animal diseases in Nigeria

STAFF PRIMARY SCHOOL

The School has three sections, which are; Nursery section, Junior Primary, and Senior Primary. The school runs on three terms per session, i.e. 1st, 2nd and 3rd terms. The first term resumed on Monday 17th September, 2012 and closed on Friday 14th December, 2012. The second term resumed on Monday 7th January, 2013 and closed on Wednesday 27th March, 2013, while the 3rd term resumed on Monday 22nd April, 2013, and closed for the 2012/2013 session on Friday 26th July, 2013. The school activities are being guided by the curriculum and syllabus from both the Federal and State Ministry of Education. These are followed strictly by the teachers to achieve our mandate and vision

Notable Activities:

- (i) **Internal Examinations:** The school in each of the terms conducted three continuous assessment tests before the examinations. The first, second, and third terms' examinations were conducted and results given to the pupils on the closing day.

- (ii) **Sports:** The 15th Annual Inter-House Sports Competition was held on Friday the 15th November, 2013. In attendance were the Chief Host, Executive Director, Dr M. S. Ahmed, represented by the Director, Production, Dr A. E. Itodo. The Host, Mrs. E. P. Wapmuk, Chairman, NVRI Staff Schools Management Board, the PTA Chairman, Rev. R.E. Odiaka, Parents and other invited Guests.

At the end of the competition, the results obtained are as shown in the table below:

Table 17: Results of 15th Annual Inter-House Sports Competition

S/No	House	Total Scores	Position
1	Blue House	929	1 st
2	Red House	801	2 nd
3	Yellow House	768	3 rd
4	Green House	675	4 th

ACADEMIC PERFORMANCE:

The Internal Examinations were conducted in all the classes and the results were impressive. The children in Primary five and six sat for twelve (12) different secondary schools entrance examinations of their choice and scored a cumulative average of 83.3% as recorded below:

Table 18: Results of Entrance Examinations undertaken by NVRI pupils in 2013

S/No	Name of Schools	Number of Candidates	No. Pass	% Pass
1	NVRI Staff Secondary School, Vom	28	27	88%
2	St Joseph's College, Vom	3	3	100%
3	Command Secondary School, Jos	1	1	100%
4	St Louis College, Jos	2	2	100%
5	EWCA Sec. School, Miango	3	3	100%
6	Federal Govt Colleges	15	8	53.3%%
7	Redeem Peoples Academy, Jos	3	3	100%
8	Unique High School, Jos	2	2	100%
9	College of Mary Immaculate Zawan	3	2	66.7%
10	AirForce Sec. School, Jos	3	2	66.7%
11	Boy's Sec. School, Gindiri	4	2	50%
12	Girl's High School, Gindiri	3	2	66.7%

Two children sat for Team Success in Excellence examinations held at the Air Force Primary School, Jos, and had a distinction certificate after the examination.

2013 Joint Annual Speech and Prize Giving Ceremony

The school organized the eighth Joint Annual Graduation Speech and Prize Giving Ceremony on Wednesday 24th July, 2013, at 10.00am. This was well attended by invited dignitaries, Management, Staff of the Schools and the Institute, Students and the pupils. It was a memorable occasion for the pupils and students as they receive both academic and non-academic prizes.. A total of fifty three (53) pupils graduated from Primary six to different colleges of their choice while sixty four (64) pupils graduated from Nursery Section into primary one.

Seminars, Workshops/Conferences

During the reporting year, eight (8) staff attended various educational workshops and conferences relevant to their fields. The schools also organized a Capacity Building Workshop on the 6th June, 2013 for all staff. This has been translated into hard work and commitment to duty.

School Clinic

Immunization against Measles, Polio, Meningitis and dewormer were given to the pupils according to their ages during the reporting period.

Students on Teaching Practice

Seven (7) students from Federal College of Education, Pankshin, College of Education Gindiri and NTI, Jos Study Centre were in the school for teaching practice

CHALLENGES:

- Insufficient play materials at the children's playgrounds

- Need for teachers in French, Music, English Language, Mathematics, Fine Arts, Physical and Health Education and Computer Education.
- Lack of sporting materials
- Lack of school library, multipurpose Laboratory and Assembly hall
- Replacement and construction of more desks in the school.
- Replacement of two Class Assistants who passed away.

STAFF SECONDARY SCHOOL

The Staff Secondary School carried out the following general activities during the period under review:

1. Classroom academic teaching
2. Educational visits/excursions
3. Counseling sessions for students
4. General sporting activities and other extra-curricular activities
5. Attending and organizing workshops/seminars to keep the teachers professionally updated
6. Conducting examinations (internal and external).

ACHIEVEMENTS

1. The school graduated 47 students who sat for both WAEC and NECO examinations in the period under review (2012/2013).
2. The school recorded 82.9 percent in the SSCE and 96.8 percent in the NECO examinations respectively.
3. Nine teachers were employed in different fields.
4. Seventeen teachers were promoted to various ranks/cadres in these outgoing years.
5. The school organized a speech and prize giving ceremony for the outgoing students on the 24th July, 2013.
6. The Annual inter house sports was organized on the 14th November, 2013 and Blue House emerged the overall winner.
7. Our students participated in the Spelling Competition organized by Jos South Area Office and came second at the final level and were presented with a trophy.

8. The school produced the second edition of its magazine “The voice of the Future” with the theme, “Education in the New Millennium” for the 2012/2013 academic session.
9. An orientation and familiarization tour of the school environment and key areas within the Institute was organized for the newly admitted JSS One and other new students who joined the school. It was carried out by the school Guidance Counselor.
10. A seminar was organized for the JSS3 and SS3 students on the topic “Examination Success and Motivational Tips”.
11. PTA donated 20 new computers and a server to the school which was commissioned by the Executive Director, Dr M. S. Ahmed.
12. A capacity building seminar was organized for the teachers to keep them professionally updated and to improve their output in productivity.

SSCE WAEC AND NECO 2013 ANALYSIS

Table 19: Analysis of the 2013 WAEC Result

Subject	A1	B2	B3	C4	C5	C6	D7	E8	F9	%Pass
English			3	3	2	9	12	5	14	70.8
Mathematics					2	2	5	10	29	39.6
Hausa								1		100
CRS		1	4	1	6	10	10	1	10	76.7
IRS							1			100
Commerce	1	3	3	1	2	4				100
Economics			7	7	11	18	4	1		100
Geography	1	1	5	7	4	10	7	1		100
Government		1	5	3	5	6	1			100
Literature					1	5	1	8	8	66.7
Biology			1	1		16	11	12	6	87.2
Chemistry			2	3	4	14	1	1		100
Health Scie.						1				100
Physics				3	5	15	1	2		100
Further Maths								1	1	50
Agric Science	3	1	16	3	2	2	1			100
Food & Nutrition										
H/Management			6	4						100%
French						1				100%

Percentage Pass = 82.9%

ANALYSIS OF 2013 NECO RESULT

Table 20: Analysis of the 2013 NECO Result by Subjects

Subject	A1	B2	B3	C4	C5	C6	D7	E8	F9	%Pass
English				1	17	24	6	1		100
Mathematics					4	36	9			100
Hausa					1					100
CRS				10	21	14				100
IRS							1			100
Commerce					1	1	9	2	1	92.9
Economics			1	7	17	19	3	1		100
Geography			1	2	10	20	1	1		100
Government					1	17	4			100
Literature			2		11	9				100
Biology				1	9	29	9			100
Chemistry					1	19	8			100
Health Scie.						1				100
Physics					8	19	1			100
Further Maths						1			1	50
Agric Science				1	8	19				100
Food & Nutrition						1				100
H/Management					6	2				

Percentage Pass = 96.6%.

Bereavement: The school lost three members of its staff in the year under review.

Challenges/Constraints

1. Lack of library facilities
2. Lack of Science Laboratories
3. Lack of Examination Hall
4. The school is in dire need of a School Bus.

STORES

Introduction

The Stores division has continued to discharge her mandate by ensuring an uninterrupted flow of working materials to the production and services departments of the Institute thereby contributing to the attainment of the objectives of the Institute. To fulfill this mandate the division has a total of 13 staff comprising 12 Senior, one Junior and 2 Casual Labourers. In the year under review, the Institute's Main Stores received all materials ordered, their stocking and issuance of same on an approved stores transfer vouchers to user Departments. Thus, it was able to reconcile physical records with records listing of all the materials on all the shelves, updated inventories in offices and laboratories and the proper posting and documentation of all incoming consignments.

Highlight of Activities

Vaccine Dispatch

A total of 100,772,163 doses of vaccine were received from the Production Department and 80,514,389 was dispatched to the Sales Unit. The figure showed an increase of 5.95% in vaccines received and dispatched over the 2012 performance as can be seen on tables 21 and 22.

Table 21: Stock Movement (Quantity) in 2013

Description	Viral Vaccines (Doses)	Bacterial Vaccines (Doses)	Total (Doses)
Opening Balance	7,709,372	1,405,700	9,115,072
Add Receipts	73,621,211	18,035,880	91,657,091
Total Available	81,330,583	19,441,580	100,772,163
Less Issues	75,026,906	16,810,800	91,837,706
Balance C/F	6,303,677	2,630,780	8,934,457

Table 22: Comparative Stock Movement of Vaccines in 2012 and 2013

Description	Total Vaccines Activity in 2013	Total Vaccines Activity in 2012	Difference
Opening Balance	9,115,072	3,118,079	
Add: Receipts	91,657,091	86,511,382	5,145,709
Total Cost Available	100,772,163	89,629,461	
Less: Releases	91,837,706	80,514,389	11,323,317
Balance C/F	8,934,457	9,115,072	

During the period under consideration, ₦489,687,004.47 was expended on the consignments received from suppliers. A total of ₦73,682,869.73 worth of feed was issued for the compounding of feeds for our poultry, research and livestock activities. The summary of feeds and concentrates used is shown below

Table 23: Showing Feed and Concentrates used in 2013 (Jan – Dec)

S/ N	Description	Qty B/F Jan. 2012	Qty Receipts (Kg)	Total Balance	Qty Issued (Kg)	Unit Price	Amount (₦)	Qty Balance
1.	Maize	80,916.2kg	240,000kg	320,916.2	315,172.3	110	34,679,953.00	5,643.9
2.	Soya Beans	5,233	120,000	125,233	98,624	150.00	14,793,600.00	26,609
3.	Wheat Offal	60,925	90,000	150,925	96,075	75.00	7,205,625.00	54,850
4.	Limestone	31,101.2	30,000	61,101.2	48,413.45	40.00	1,936,538.00	12,687.75
5.	Bone Meal	30,606.9	30,000	60,606.9	44,196.51	75.00	3,314,738.25	16,410.39
6.	Methionine	23	375	398	348	2,250.00	783,000.00	50
7.	Lysine	8.09	275	283.09	283.09	2,100.00	594,489.00	Nil
8.	Nutrizyme	29,489	80	109,489	109,489	1,687.00	184,707.94	Nil
9.	Grower Mash	12	250	262	259.5	950.00	246,525.00	2.5
10.	Chicks Premix	22	300	322	247	1,250.00	308,750.00	75
11.	Layer Mash	13.85	300	313.85	306.975	940.00	288,556.00	6.875
12.	Breeders Mash	65	200	265	192.5	1,650.00	317,625.00	72.5
13.	Fish Meal	123.54	740	863.54	763.54	1,150.00	878,071.00	100
14.	Common Salt	2,349.55	2,500	4,849.55	3,977.35	79.40	315,801.59	872.2
15.	Feed Bags	22,794	25,000	47,794	37,688	62.00	2,336,656.00	10,106
16.	Mycotoxin	133.75	170	303.75	103.75	1,575.00	163,406.25	200
17.	Broiler finisher	0	50	50	42.5	890.00	37,825.00	7.5
18.	BDG	15000	30000	45000	21500	53.00	1,139,500.00	23,500
19.	Cotton seed	3,331.8	30,000	33,441.8	33,441.8	65.00	2,173,717.00	Nil
20.	Cake PKC	12,250	30,000	42,250	21,250	55.00	1,168,750.00	21,000
21.	Rice Bran	14,720	30,000	44,720	15,280	53.34	815,035.20	29,440
TOTAL							₦73,682,869.73	

During the year a total of 539,720 litres of diesel was consumed by our generating plants and vehicles, leaving a balance of 22,889 litres. In addition a sum total of ₦3,628,900 was expended on water treatment and cement.

Challenges

1. Need for training on the use of software on inventory control.
2. Lack of handling equipment such as fork Lift to enhance movement of bulky items and equipment
3. The dilapidated and deplorable state of the Central Stores building
4. Inadequate number of qualified staff for improved efficiency in Stores' Operation.

VETERINARY EXTENSION AND RESEARCH LIAISON SERVICES

The Division carries out all the extension activities of the Institute. It packages technologies released from the Research Divisions for dissemination to livestock and poultry farmers in the country. Questions from farmers are addressed and disseminated using appropriate medium for others to benefit.

Extension activities are executed through:

- OFAR (On-Farm-Adaptive-Research Trials)
- Monthly technology review meetings (MTRM)
- Surveys (thematic and general)
- Training workshops
- Publications (print and electronic)
- Meetings
- WIA (Women in Agriculture)

On Mid-Term Review Meetings (MTRM), invitations were received from Nasarawa, Niger and Bayelsa ADPs. All the invitations were honoured.

Four (4) training workshops organized by the West African Agricultural Productivity Programme (WAAPP) were attended. Also, the Institute with NCRI, Badeggi jointly organized annual research review meeting and hosted the North-Central REFILS workshop.

As part of the Institute's electronic extension publications, ten (10) Hausa episodes of *Mu leka rugage* radio programme covering various aspects of livestock and poultry diseases were produced and aired on FRCN Kaduna. *Itoju Ohun Osin*, the Yoruba episodes aired on FRCN Ibadan to the Southwest Nigeria featured 52 episodes in 2013. Four (4) News Bulletins were produced while five extension bulletins are in the proof reading stage. Only one North-

Central Zonal steering and technical committee meetings was attended in 2013. The Institute participated in the 2013 National Agricultural Show.

VIRAL RESEARCH

The division is mandated to conduct research, surveillance, disease diagnosis and development of biologicals with reference to African swine fever (ASF), African horse sickness (AHS), foot and mouth disease (FMD) and PPR. Others are NDV I₂, Parainfluenza-3, rabies and skin diseases of viral aetiology

Notable Activities in the year 2013

Foot and Mouth Disease

Six hundred and fifty (650) cattle from Niger States were tested for NSP FMD ELISA and 533 were positive. Out of 90 FMDV-NSP positive from Niger state, 90 were typed from which 58 were positive for SAT-2, 51 for type A, and 70 for type O. 78 FMDV-NSP positive bovine samples were tested for FMDV antibody serotype O, 63 were shown to be positive for serotype O.

18 epithelial tissues collected from outbreaks in Plateau, Taraba, Cross River and Kaduna states were tested using FMDV antigen ELISA for Serotypes A, O, SAT-1 and SAT-2. Four (4) were positive for serotype A, three (3) for SAT-2 and three (3) for SAT-1 respectively

29 Samples (Epithelial, swabs, probing) were tested using RT-PCR, out of which eight (8) were positive for the FMDV genome

Four hundred and fifty (450) swine sera from Taraba and Adamawa states were tested for FMD using 3ABC FMD-NSP ELISA. Five (5) were positive and 445 were negative for FMDV antibodies.

One hundred and eighty (180) sheep and goats sera were screened for FMDV antibodies using FMD-NSP ELISA. Seventy five (75) of them were found positive

Isolation of FMD virus was attempted on 20 clinical samples using IBRS-2 cell line and three were successful showing cytopathic effect (CPE)

African swine fever (ASF)

Three hundred and eighteen (318) porcine sera were tested using ASF antibody B ELISA and 68 were found positive.

African horse sickness (AHS)

Two hundred and eighty (280) horse sera samples from Kaduna were screened for AHS antibodies, 231 were positive and 49 negative.

Rabies

1. The Rabies Group developed 22 different standard operating procedures (SOPs) to be used as working documents in rabies research and development activities in the Laboratory
2. We have carried out the Titration of Challenge Virus Standard (CVS) in Mice which gave $10^{4.75}/0.03\text{ml}$ titre in mice
3. We have also done Titration of first LEP virus passage in 5-day-old baby mice. This gave $10^{2.75}/0.03\text{ml}$ in mice
4. The seed virus has undergone passages (adaptation) up to the fourth level in the BHK-21 cell culture, while they are awaiting titration in BHK-21 cells. The harvest has been stored at -20°C in deep freezer.

Newcastle Disease

In the development of pelleted Thermostable NDV-I₂ clone vaccine for the control of Newcastle disease in rural poultry using local foodstuff (acha) as carrier, the under listed activities were carried out:

- ✓ Clone NDV-I₂ virus multiplication
- ✓ Determination of EID₅₀ of clone virus
- ✓ Quality check and assessment of the pelleted feed vaccine efficacy

- ✓ Pelleted feed vaccine was prepared using clone virus, and a cha
- ✓ Pelleted vaccine to chicks was administered at different rates (gramage) for on-staion trial
- ✓ Birds were sero-monitored to determine their antibody titre after sero-conversion.

Revalidation of the on-station trial

- ✓ Birds were procured and brooded
- ✓ Pelleted vaccine was prepared and EID₅₀ of pelleted vaccine determined
- ✓ Birds were distributed in cages for the revalidation trial at week four
- ✓ Unfortunately, the birds at week six of age were infected with wild strain of infectious bursal disease disrupting the planned activity.

VIRAL VACCINES

Introduction

The division continued in her 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 use of other divisions in the institute. Also, the freeze drying and Labeling Sections render services to other divisions involved in the production of lyophilized vaccines and other biological.

In line with the above mandate, the division produced the under listed veterinary viral vaccines:

- Infectious bursal disease virus (Gumboro) vaccine

- Fowl Pox vaccine

- Newcastle disease vaccine (La Sota)

- Newcastle disease vaccine (Intra-ocular)

- Newcastle disease vaccine (Kumarov)

- Newcastle disease vaccine (NDV-I₂)

- PPR vaccine

- Rabies vaccine for dogs

Production Activities in 2013

The division produced millions of doses of the various veterinary viral vaccines to meet up with market demands. The details of vaccine production for the year are given in tables 24 and 25

Also, the division produced about 4,000 litres of distilled water for use in various divisions of the Institute and the two colleges. The Cell Culture Section of the division prepared and gave out various cell cultures in monolayer and

suspension including Vero R133, MNA, IBRS, ZZR 2 and BHK-21 for research, quality control of viral vaccines, and culture bank using liquid nitrogen.

Progress:

- Installation of a new cold room specifically for holding freeze dried vaccine while awaiting internal quality checks; and the 2 existing cold room facilities were refurbished. These have enhanced production.
- Works have started on the installation BOC Edwards freeze dryer.
- The faulty labeling machine was resuscitated and is functional.
- The division ordered ATCC organisms required for validation of sterility test broth as specified by the British pharmacopoeia. The organisms were propagated, freeze dried, labeled and stored in the Central Diagnostics Division
- In the course of the year, vaccine seed was sourced from PANVAC for NDV-i/o, NDV I₂ and PPRV
- IBDV master and working seed was produced with the kind assistance of Dr TM Joannis the Head of the Regional Lab for Avian Influenza and Other Transboundary Animal Diseases

Table 24: Vaccines Production Figure (vials) January - December 2013

MONTH	ARV	IBDV	FPV	NDV-K	NDV-L	NDV- i/o	NDV- I₂	PPRV	TOTAL
January	6,913		5,876	7,829	8,281	0	0	24,584	53,483
February		10,299		7,562	8,432	0	0	11,430	37,723
March	0	17,679	*5809	13,966	8,625	9,481	0	16,207	65,958
April	7,495	*6,524	0	0	12,817	0	0	9,033	29,345
May	11,261	6,104	5,449	0	19,854	7,483	0	15,400	65,551
June	4,568	15,824	9,466	4,726	15,227	0	0	0	49,811
July	*8,263	*30,916	8,726	8,930	23,364	0	0	0	41,020
August	25,872	10,063	0	17,332	16,485	0	0	0	69,752
Sept	0	9,285 *5,472	0	3,862	16,346	0	0	0	29,493
Oct	0	0	0	0	0	0	0	0	0
Nov	0	0	0	0	25,157	0	6,639	0	31,796
Dec	0	4,970	0	0	0	0	0	0	4,970
Total	56,109	74,224	29,517	64,207	154,588	16,964	6,639	76,654	478,902

*These figures represents batches of vaccines produced but did not pass quality assessment and were not issued for field use and are not included in the totals.

Table 25: Vaccines Production Figure (doses) January – December 2013

MONTH	ARV	IBDV	FPV	NDV-K	NDV-L	NDV- i/o	NDV- I₂	PPRV	TOTAL
Jan	6,913	0	1,175,200	1,565,800	1,656,200	0	0	1,229,200	5,633,313
Feb	0	2,059,800	0	1,512,400	1,686,400	0	0	571,500	5,830,100
March	0	3,535,800	*1,161,800	2,793,200	1,725,000	1,896,200	0	810,350	10,760,550
April	7,495	*1,304,800	0	0	2,563,400	0	0	451,650	3,022,545
May	11,261	1,220,800	1,089,800	0	3,970,800	1,496,600	0	770,000	8,559,261
June	4,568	3,164,800	1,893,200	945,200	3,045,400	0	0	0	9,053,168
July	*8,263	*6,183,200	1,745,200	1,786,000	4,672,800	0	0	0	8,204,000
August	25,872	2,012,600	0	3,466,400	3,297,000	0	0	0	8,801,872
Sept	0	1,857,000 *1,094,400	0	772,400	3,269,200	0	0	0	5,898,600
Oct	0	0	0	0	0	0	0	0	0
Nov	0	0	0	0	5,031,400	0	331,950	0	5,363,350
Dec	0	994,000	0	0	0	0	0	0	994,000
Total	56,109	14,844,800	5,903,400	12,841,400	30,917,600	3,392,800	331,950	3,832,700	72,120,759

*These figures represents batches of vaccines produced but did not pass quality assessment and were not issued for field use and are not included in the totals.

Challenges

1. The freeze dryer experienced incessant break downs, with spoilage of vaccines and resultant wastages. These breakdowns were often

attributed to electric power fluctuations and sometimes mechanical faults due to aging of the equipment.

2. Inadequate storage facilities for wet vaccines in terms of containers and ultralow temperature freezers.
3. Frequent power fluctuations leading to the breakdown of some equipment notably the two digital autoclaves which critically affected vaccine production.
4. Lack of experimental animal house required for potency, safety and efficacy testing of vaccines is inadequate.

Other Notable Activities

- AU - PANVAC representative visited the Division for assessment of PPR vaccine production facility in preparation for the OIE continental PPR campaign.
- In line with the above, Mrs. Esther Adekunle attended 4-week training on PPRV production in AU - PANVAC, Debre Zeit, Ethiopia.

WORKSHOP

The mandate of the Division is to carry out routine Maintenance and repairs of the structures and machineries that exist in the Institute. The Division also carries out new constructions and Installations where it becomes necessary in the Institute.

The Workshop is composed of sections namely the Plumbing, Carpentry, Painting and Welding sections. Others are Plant maintenance, Electrical, Auto-mechanic, Transport and Environmental Maintenance sections.

In the year under review, some of the major works that were carried out by the division include the re-roofing of staff Quarters at Hwolshe-Jos and Shekarou close Bukuru. Similarly, blown off roofs of NVRI staff Primary and Secondary Schools was repaired by the Carpenters. The electricians were mostly involved in changing of Fluorescent type lighting fittings to the Energy saving types in Laboratories, Offices, Halls, and Residential and security lights. Other major jobs carried out by the electricians include the extension of Power to the new BLS 3 Lab and the changing of the supply line from VET Clinic that extends to the Banks, Large Animal Experimental unit and the Staff Schools.

The Plumbers carried out on several occasions their usual installations and repairs of both raw and treated water pipe lines. They also attended to many plumbing needs in offices and residential areas. The Painters were able to repaint the Institute's main Gate, the Cold Rooms in the Stores and Virology and a burnt Lab in the Q.C complex.

During the year also, the Plant Maintenance Section of the division carried out routine servicing, washing of Radiators, Changing of Air filters and broken fuel lines on Eleven (11) functional Generators of the Institute. A major problem experienced by the division towards the end of the year was the breakdown of

one of the 500KVA generators in the Workshop. Fortunately, a new one of the same capacity had been purchased and was on standby. It was then used to replace the broken down one. Other sections like the Welding and Masonry also carried out so many jobs in relation to their areas of specialization. The Environmental Maintenance Unit took care of trimming of trees, pruning and cutting of grasses around the Institute, opening of drainages, fire tracing around the paddocks and the general sanitation of the Institute.

Some of the challenges faced by the Division include lack of man power in some sections, inadequate office accommodation, lack of modern tools and lack of spare parts for immediate response to problem areas

OTHER REPORTS

Journal Publications by Staff

Borm VS, Obishakin E, Joannis T, Lambrecht B, Van den Berg (2012). **Further evidence for the wide spread co-circulation of lineages 4b and velogenic Newcastle disease viruses in rural Nigeria.** *Avian Pathology*; 41(4): 377 - 382.

Luka DP, Jambol RA, Yakubu B **Detection of African swine fever virus from formalin fixed and non-fixed tissues by PCR** (In-Press).

Bacteriological analysis of enteric pathogens found among bat colonies existing in Plateau and Bauchi States of Nigeria (In Press)

Meseko *et al.*, (2013) **Swine Influenza in Sub Saharan Africa – Current Knowledge and Emerging Insights.** *Zoonoses and Public health* doi: 10. 1111/ZPH. 12068

Meseko *et al.*, (2013) **Detection and isolation of 2009 pandemic influenza A/H1N1 virus in commercial piggery, Lagos Nigeria.** *J. Vetmic.* Doi: 10.1016.

SEMINARS PRESENTED IN THE INSTITUTE IN 2013

1. On binomial regression analysis of human papillomavirus (HPV) infection data- **AA Ajibade et al**
2. Isolation and molecular characterization of pigeon variant of Newcastle disease virus from a local chicken- **Ponman Solomon**
3. Survival pattern of campylobacter in various faecal matrices-**JA Benschak and Forbes, KJ**
4. Reverse zoonosis: the transmission of pandemic A/H1N1 influenza virus from human to pigs in Nigeria- **CA Meseke et al**
5. Detection of African swine fever virus from formalin fixed and non-fixed tissues by polymerase chain reaction- **PD Luka et al**
6. A decade of rabies diagnosis: NVRI perspective- **I Tekki et al**
7. Detection of lead in liver and kidney of slaughtered cattle at Sokoto central abattoir, Sokoto state, Nigeria- **Bala Akawu**
8. Cost efficiency of herd health management programs- **VI Ifende**
9. Moringa multi-nutrient blocks: formulation, production, and feeding trial under a tropical environment- **A Fayomi et al**
10. Sero-prevalence and Brucella infection in Kachia grazing reserve Kaduna state, Nigeria- **AM Gusi**
11. Molecular detection of *Leptospira* in rodents (*Rattus norvegicus*); implication for public health-**DA Gado and Cutler, SJ**
12. Detection of *Mycobacterium tuberculosis* complex infection in slaughtered cattle at Jos South Abattoir, Plateau State, Nigeria-**LA Okeke et al**

MAJOR ACTIVITIES HELD IN THE INSTITUTE IN 2012

Table 26: Visit of Dignitaries, Organizations and Institutions to NVRI in 2013

S/N	DATE OF VISIT	DIGNITARIES, ORGANISATIONS/ INSTITUTIONS	NAME OF TEAM LEADER	PURPOSE OF VISIT
1	22/2/2013	Participants of Senior Executive Course No35, 2013	Rear Admiral AOA Ikioda	Orientation Visit
2	8/3/2013	Visit of the commissioner of police Plateau State	CP Chris Olakpe JP mni	Courtesy call
3	12/3/2013	Commissioner of Public Complaints Commission, Plateau State.	Hon. Gabriel D. Bwan Fom	Courtesy Call
4	17/6/2013	Nigeria Police Force Animal Branch, Veterinary Section Plateau state	Asp Julius Samuel(Dr)	Courtesy call
5	17/6/2013	Canadian High Commissioner to the Institute		Courtesy call
6	28/8/2013	Senior Executive Course no35 study tour Group 1		Courtesy call
7	5/9/2013	Federal Controller, Federal Ministry of Lands, housing and Urban Development, Field Headquarters, Plateau State	Arc. O. Adadu MNIA, MNIM, MNES	Courtesy call
8	25/10/2013	Hon. Commissioner of Health, Plateau State	Dr Fom Dakwak	Courtesy call
9	20-21 st Nov 2013	Senate Committee on Agriculture		Oversight functions

SPECIAL EVENTS THAT TOOK PLACE IN 2013

- * A total of 54 Secondary Schools visited the Institute, 13 colleges of Education, 9 polytechnics and 8 universities visited the Institute in 2013.
- * NVRI Staff School Inter-house Competition
- * Agricultural Research Review Meeting (ARRM)
- * FRSC Zone RS 4 HQ, Jos Zonal meeting hosted by NVRI, Vom
- * NVRI Directors Cup Competition.
- * NVRI Staff Schools speech and prize giving day, 24th July 2013
- * Closing of 10th NEF/NVRI Toxicology Programme, August 2013
- * Inaugural meeting of NVRI Governing Board, 23rd October, 2013
- * Handover of PTA Acquired Computers to the Executive Director for NVRI Staff Schools 21st October, 2013
- * Presentation of Computers to NVRI Staff School, 21st October, 2013
- * 14th RIGAN Games, 6th December, 2013
- * 73rd Regular Meeting of NVRI Governing Board 17th December, 2013
- * 2013 National Agricultural Show (promoting Agric Business Investment for Job and Wealth Creation and Sustainable food Security 4th-7th November, 2013

UNIVERSITY DONS ON SABBATICAL IN THE INSTITUTE IN 2013

1. Professor Adeleke Fayomi

College of Agriculture and Animal Science Division of Agricultural
Colleges, Ahmadu Bello University, Kabba Kogi State, Nigeria

*[9th Jan, 2012 - June 2013 and July –
Sept 2013 (extension)]*

2. Professor (Mrs.) Mariam Solomon

Department of Biochemistry

University of Jos

(2nd May, 2012 - 30th April, 2013)

RETIRED STAFF OF 2013

The Committee, on behalf of the Institute, appreciates the under listed senior friends/elders/mentors who retired in 2013 from NVRI after meritorious service to the nation. We wish them a rewarding retirement life with good health and strength.

Table 27: List of Retired Staff in 2013

S/N	NAME	DESIGNATION	REMARK
1.	Mrs. Orogun Mojisola Mary	Chief Confidential Secretary	13/02/2013
2.	Mr. Da'en Stephen	Senior Foreman	16/03/2013
3.	Dr. Salami-Shinaba J. O.	Director (Livestock Services)	13/04/2013
4.	Mr. Danboyi Bala	Senior Foreman	05/06/2013
5.	Dr. Molokwu John U.	Director (Planning)	24/06/2013
6.	Mr. Ibrahim Mustapha	Chief Motor Driver	17/07/2013
7.	Mrs. Nwachukwu Margaret	Senior Data Processing Assistant	26/07/2013
8.	Mr. Adedeji Adetoyese A.	Chief Medical Laboratory Scientist	10/08/2013
9.	Mr. Chukwukere Sylvester C.	Chief Science Laboratory Scientist	29/08/2013
10.	Miss Eze Grace N.	Senior Secretarial Assistant	10/08/2013
11.	Mrs. Gyang Mary Chundung	Chief Medical Laboratory Technician	19/10/2013
12.	Mrs. Rifkatu Dalyop	Laboratory Attendant	19/10/2013
13.	Mr. Bauchi Musa Abdul	Chief Medical Laboratory Assistant	19/10/2013
14.	Bulus Dachung Pam	Chief Secretarial Assistant	01/11/2013
15.	Mr. Onuorah Augustine	Chief Medical Laboratory Scientist	10/11/2013
16.	Mr. Karsin Paul Doro	Chief Technical Officer	14/11/2013
17.	Mr. Aremu Peter Olukayode	Chief Medical Laboratory Scientist	15/11/2013
18.	Mrs. Felicia Choji	Higher Medical Laboratory Scientist	15/11/2013
19.	Mrs. Ujah Luciana A.	Chief Medical Laboratory Attendant	31/12/2013

LIST OF STAFF WHO TRANSFERED THEIR SERVICE IN 2013

Three staff of the Institute transferred their service in the year under review. The Committee wishes them well in their new place of work

Table 28: List of Transferred Staff in 2013

S/N	NAME	DESIGNATION	REMARK
1.	Dr. Musa Usman	Assistant Director (Livestock Services)	01/06/2013
2.	Dr. Sulieman Ahmed Babangida	Principal Research Officer	01/06/2013
3.	Dr. Ibu John O.	Assistant Director (Diagnostics)	01/09/2013

DECEASED STAFF OF 2013

On behalf of the Management of the Institute, the Committee expresses her heart-felt condolences to the families, relations and staff of the Institute for the loss of the under listed staff members during the year under review. We pray that the good Lord will grant all of us the courage to bear the irreparable loss

Table 29: List of Deceased Staff in 2013

S/N	NAME	DESIGNATION	REMARK
1.	Mr. Zal Yusuf	Chief Internal Auditor	15/03/2013
2.	Mr. Sabo David	Principal Secretarial Assistant	30/03/2013
3.	Mr. Ahmadu Mohammed	Agric Field Attendant	05/04/2013
4.	Mr. Arzard Samuel S.	Principal Medical Laboratory Scientist	23/04/2013
5.	Mrs. Mordi Ann O.	Assistant Chief Accountant	04/06/2013
6.	Mrs. Lokason L. Mary	Principal Assistant Education Officer II	17/09/2013
7.	Mr. Oladejo O. Akano	Senior Foreman	22/09/2013
8.	Mrs. Adoga Francisca	Chief Medical Laboratory Attendant	26/09/2013
9.	Mr. Zungum Garba Aliyu	Chief Data Processing Officer	27/11/2013

RESIGNATION

The under listed three staff of the Institute resigned their appointments in 2013

Table 30: List of Resigned Staff

S/N	NAME	DESIGNATION	REMARK
1.	Mrs. Ojo Ibukun Helen	Research Officer I	30/08/2013
2.	Habufari Rakiya	Admin Officer I	13/05/2013
3.	Ahmad Faruk Halira	Veterinary Research Officer	09/11/2013

LIST OF STAFF WHO COMPLETED THEIR IN-SERVICE TRAINING IN 2013

Table 31: List of staff that successfully completed in-service training in 2013

NAME	COURSE OF STUDY	COMMENCEMENT OF STUDY	COMPLETION
Mr. Kigbu Sunday	HND Microbiology	9/23/2011	12/25/2013
Mrs. Kaigama Alfa Josephine	HND Microbiology	9/23/2011	12/25/2013
Mrs. Hong Justina J	HND Microbiology	9/23/2011	12/25/2013
Dr. Arowolo Oluwadamilola	M Sc. in Infection and Immunology	9/10/2012	12/12/2013
Dr. Dashe Yakubu	PhD Microbiology	4/20/2009	3/4/2013
Dr. Ogo Isaac Ndudim	PhD in Vet Microbiology	4/14/2008	4/9/2013
Dr. Sugun Manasa	PhD in Vet. Microbiology	8/4/2008	8/13/2012
Dr. Kumbish Peterside	PhD in Vet. Pathology	2008	5/30/2013
Lilian Okeke	M Sc. Field Epidemiology	1/17/2011	7/19/2013
Gyang Laraba	HND Microbiology	9/23/2011	1/27/2014

LIST OF STAFF APPROVED FOR TRAINING IN 2013

Table 32: Staff Approved for Training in 2013

S/No.	NAME	RANK	DIVISION	COURSE OF STUDY	INSTITUTION	DURATI ON	NATURE OF TRAINING	DATE OF COMMT.	DATE OF RESUMP T.
1	Dr. Ekong P. Stephen	Prin. Vet. Res. Officer	Central Diagnostic	Epidemiology	Kansas U.S. Coll. Of Vet. Med.	4 years	Full Time	1/10/2013	1/11/2015
2	Dr. Suleiman Lanre	Prin. Vet. Res. Officer	Reg. Lab for AI	Virology & Immunology	Uni Brazil Sau-Paulo	4 years	Full Time	4/30/2013	5/1/2015
3	Mrs. Miapkwap Kangrot	Planning Officer I	Planning	Economics	Uni Jos	5 years	Part Time	2011	2016
4	Dr. Oladipo O. Olalekan	Prin. Vet. Res. Officer	Biochemistry	Vet. Toxicology	ABU, Zaria	5 years	Part Time	3/7/2011	3/8/2016
5	Dr. Tekki S. Ishaya	Prin. Vet. Res. Officer	Viral Research	Virology	Uni. Ibadan	5 years	Part Time	6/1/2011	6/2/2016
6	Mr. Shittu Ismaila	Principal Res. Officer	Viral Research	Virology	Uni. Ibadan	5 years	Part Time	6/1/2011	6/2/2016
7	Dr. Ishaku Leo	Prin. Vet. Res. Officer	Biochemistry	Phytomedicine	Uni. Pretoria	3 years	Full Time	3/1/2013	3/2/2016
8	Dr. Solomon Ponman	Prin. Vet. Res. Officer	Reg. Lab for AI	Avian Virology	Uni Pretoria	3 years	Full Time	7/15/2013	7/16/2016
9	Dr. Egbuji Anthony	Prin. Vet. Res. Officer	Quality Control	Vet. Microbiology & Pathology	Uni Agric. Makurdi	5 years	Part Time	10/10/2012	10/11/2017
10	Dr. Hussaini Ularamu	Prin. Vet. Res. Officer	Viral Research	Vet. Microb & Virology	Uni Agric. Makurdi	5 years	Part Time	10/10/2012	10/11/2017
11	Dr. Jambalang R. Alex	Prin. Vet. Res. Officer	Bacterial Research	Bacteriology	Uni Pretoria	3 years	Full Time	4/30/2013	5/1/2017
12	Dr. Asala Olayinka	Prin. Vet. Res. Officer	Viral Vaccine Prod.	Avian Medicine	ABU, Zaria	5 years	Part Time	1/20/2013	1/21/2018
13	Mrs. Lakan Lydia	Chief Librarian	Library	Information Science	ABU Zaria	5 years	Full Time	1/20/2013	1/21/2018
14	Dr. Masdooq Aliyu	Prin. Vet. Res. Officer	Outstation	Microbiology	Tamil Nadu Vet & Animal Science Uni.	3 years	Full Time	9/23/2013	9/24/2016
15	Dr. Dauda Bwala	Prin. Vet. Res. Officer	Viral Research		University of Pretoria	3 years	Full Time	2013	2016
16	Dr. Ikpa Livinus	Senior Vet. Res. Officer	Bacterial Research	Vet. Medicine	Uni Agric, Makurdi	2 years	Full Time	10/10/2012	10/11/2014
17	Dr. Ankeli P. Idoko	Senior Vet. Res. Officer	Bacterial Vacc. Prod.	Vet. Path Micro	ABU, Zaria	2 years	Full Time	3/25/2012	3/26/2014
18	Samme U. Andrew	Asst. Chief Admin Off.	Admin	Public Admin	Uni Jos	2 years	Full Time	12/15/2012	12/16/2014
19	Sarah Walbe	Admin Officer I	Admin	Public Admin	Nasarawa State Uni., Keffi	2 years	Full Time	3/1/2012	3/2/2014
20	Ogbonnah Chimezie	Medical Lab Scientist	Bacterial Vacc. Prod.	Medical Microbiology	Nnamdi Azikiwe Uni. Awka	2 years	Full Time	2/2/2012	2/3/2014

21	Dr. Agang Ishaya	Senior Vet. Res. Officer	Abuja Lab	Avian medicine	ABU, Zaria	2 years	Full Time	3/25/2012	3/26/2014
22	Mwankon Esther	Senior Med. Lab. Scientist	Bacterial Res. Div.	Medical Microbiology	University of Jos	2 years	Full-Time	9/9/2012	9/10/2014
23	Dodo Rebecca	Med. Lab. Scientist	Kaduna Lab	Microbiology	ABU, Zaria	2 years	Full Time	3/2/2012	3/26/2014
24	Sallau Zainab Adamu	Librarian II	Library	Library & info science	ABU, Zaria	2 years	Full Time	3/25/2012	3/26/2014
25	Kwatjel Jephthah	Senior Med. Lab. Scientist	Kaduna Lab	Applied Ento & Parasitology	Uni Jos	2 years	Full Time	2013	2015
26	Mafai Cyril Danjuma	Senior Admin Officer	Admin	Sociology	Uni Jos	2 years	Full Time	2013	2015
27	Alesa Madu	Seniorr Med. Lab Sci	Central Diagnostic	Biotechnology	Nigerian Defence Academy	2 years	Full Time	#####	10/15/2015
28	Buba Lucy	Confidential Secretary II	Regional Lab for AI	Office Technology	Plateau State Poly	2 years	Full Time	10/22/2012	10/23/2014
29	Musa Martha	Data Processing Officer	Planning	Office Technology	Plateau State Poly	2 years	Full Time	10/22/2012	10/23/2014
30	Abigail Choji	Chief Clerical Officer	LID	Office Technology	Plateau State Poly	2 years	Full Time	10/22/2012	10/23/2014
31	Ladi Saleh	Chief Medical Lab Technician	Viral Vacc. Prod.	Microbiology	Plateau State Poly	2 years	Full Time	2/1/2013	2/2/2015
32	Israel Stephen	Medical Lab Technician	Viral Vacc. Prod.	Microbiology	Plateau State Poly	2 years	Full Time	2/1/2013	2/2/2015
33	Ocholi Helen O	Medical Lab Technician	Viral Vaccine Prod.	Microbiology	Plateau State Poly	2 years	Full Time	2/15/2013	2/16/2015
34	Alhassan Moses	Med. Lab Technician	Bacterial Research	Microbiology	Plateau State Poly	2 years	Full Time	2/15/2013	2/16/2015
35	Manjak Ziporah	Higher Exe. Off (Accounts)	Bauchi Lab	Public Admin	Fed. Poly Bauchi	2 years	Full Time	3/19/2012	3/20/2014
36	Pam Mark Di	Craftsman	Dagwom Farm	Mechanical Engineering	Plateau State Polytechnic	2 years	Full Time	10/22/2012	10/23/2014
37	Peter M Sabo	Clerical Officer	Bauchi Lab	Public Admin	Abutatati Poly Bauchi	2 years	Full time	4/1/2013	4/2/2015

ACKNOWLEDGEMENT

This Report was compiled and edited by members of the NVRI Seminar and Publications Committee, comprising:

Dr P. A. Okewole	Chairman
Dr S. J. Shaibu	Member
Dr O. O. Oladipo	Member
Dr (Mrs.) V. Ifende	Member
Dr J. Kamani	Member
Dr S. Tekki	Member
Dr A. T. Oladokun	Member
Mrs. P. M. M. Madu	Member
Mrs. S. Ekundayo	Member
Mr. Jerry Dalyop Musa	Member
Dr (Mrs.) C. I. Oditia	Secretary

The 2013 edition of the NVRI Annual Report would not have been possible without the collaboration received from Heads of Divisions and the continued commitment of members of the Committee. The cooperation and the efforts are highly appreciated. On behalf of the committee I also like to commend those who worked behind the scene towards the success of this publication.

Dr P. A. Okewole
Director (Diagnostic & Extension)
Chairman

NVRI SATELLITE LABORATORIES

A. ZONAL LABORATORIES

1. ADAMAWA STATE

P.M.B 2046, Kofare
Near Min of Agric. Natural
Resources, Farm Mechanization
Deport, Yola

2. KEBBI STATE

Jega Road,
Balasa LIBC (Silo Office)
Birnin Kebbi

3. CROSS RIVER STATE

C/O Ministry of Agriculture,
No 3 Barracks Road,
Calabar

4. KANO STATE

P.M.B 2001
Near Kundila Housing
Estate, at Kundia Vet Clinic,
UngwanUku Kano-Zaria Road,

5. ONDO STATE

Vet Centre,
Hospital Road,
Near NEPA
Akure
(Express), kano

6. ABIA STATE

P.M.B 2208
Nat. Root Crops Research
Premises,
Umudike-Umuahia

B. STATE LABORATORIES

1. ABUJA F.C.T

Nat Vet Res Inst
FCT Vet Clinic,
Mopol Junction
Nyanya Abuja
P.M.B 6590, Garki

3. AKWA IBOM STATE

P.O.Box 1055,
Etinan-Uyo

5. TARABA STATE

Vet. Investigation Lab
C/O Vet Hospital
P.M.B 1080
Jalingo

7. BAUCHI STATE

Behind NIDB Building
Maiduguri Road, Bauchi
P.M.B 0107 Bauchi
Tel: 077-543052

9. BENUE STATE

M.A.N.R Premises,
P.O.Box 908,
Makurdi

2. BORNO STATE

P.M.B 1553, Opp. NTA
Maiduguri, Near the Post
Office, Maiduguri

4. EDO STATE

Off Benin Sapele Road,
P.M.B 1447,
Benin City

6. ENUGU STATE

P.M.B 002
Oji Leather Tannery (FLD)
Near the Cooperative
Training Institute,
Orji-River

8. KADUNA STATE

P.M.B 2005 Mando Road, Near
ABU College of Agric, Kaduna

10. KATSINA STATE

P.O Box 346 Katsina,
Veterinary Clinic,
Kofar Kwaya.

11. BENUE STATE

M.A.N.R Premises,
P.O.Box 908,
Makurdi

12. KWARA STATE

Along Old Jebba Road,
Opposite Farm Center
P.M.B 1488, Ilorin

13. LAGOS STATE

No.1Keffi Street
P.M.B 12584,
Obalende, Lagos.
Tel-01-687243
01-680345

14. RIVERS STATE

Vet. Investigation Laboratory
Inside ADP Farm Premises,
Along Airport Road,
Rumuodomaya,
Port Harcourt

15. OSUN STATE

Vet. Investigation Lab
P.O Box 253 behind
Irewole LG Sec
Km 40, Ife-Ibadan Road, Ikire

16. NASARAWA STATE

Vet. Investigation Laboratory
Old Nasarawa near Guata
Village Keffi

17. PLATEAU STATE

Montol Road
P.O.Box 111, Shendam

18. SOKOTO STATE

P.O Box 801
Tel: 060-231092
Moyijo Road, Opp. Kwanni
Police Station,
Near the Central Market,
Sokoto