

VISION

**To be the foremost
Veterinary Research Institute in Africa,
cohesive in purpose,
industrious and committed to hard work and innovations.**

MANDATE

The Institute has the national mandate to:-

- a) Conduct research into all aspects of animal Diseases, their treatment and control.
- b) Develop and produce animal Vaccines, Sera and Biologicals to meet the national demand.
- c) Provide Surveillance and Diagnosis of animal diseases.
- d) Provide Extension Services to poultry and livestock farmers.
- e) Train intermediate manpower in Veterinary and Medical Laboratory Technology and Animal Health and Production Technology.

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PREFACE

Several activities came to be in 2008 to make National Veterinary Research Institute, very productive. These include:

- Staff training in key areas,
- The rehabilitation of existing research laboratories,
- Provision of equipment, reagents and chemicals,
- Improved biosecurity for the Poultry Farm,
- Breeding of laboratory animals and
- Sufficient water and constant electric power supply to the offices and laboratories.

The Institute produced over 90 million doses of 19 different types of vaccines in 2008 and also upgraded production facilities in order to increase the quality and quantity of these products. Other activities carried out included the establishment of a Quality Control Division; procurement of research and production equipment; preparation of Flow Charts and Batch Formulation Documents. Laboratory work has reached advanced stage for the commercial production of the Freeze-dried Anthrax vaccine, the Capripox and NDV (I₂) vaccines.

The Institute's Dermatophilosis Centre and Parasitology Division have continued to serve as "referral centres" for diagnosis of protracted skin infections in man.

Five of the Outstation Laboratories (Kano, Sokoto, Umudike, Ikire and Maiduguri) were renovated while the Extension Services Division was relocated to a new and befitting building in the year under review.

Training and retraining of staff for capacity building and performance enhancement was vigorously pursued through certificated academic training, participation in internal and external seminars, conferences, short courses and workshops in 2008. It is noteworthy that three staff attended and passed Stages 1 and 2 Courses for International Standards Organization Certificate and Seal of Quality for the Institute.

In the reporting year, the Institute interacted and collaborated with national and international institutions including NAERLS, Zaria for Extension Methodologies; NAPRI for Review Meetings; NAFDAC for Registration of NVRI Products; CISA-INIA, Madrid, Spain on African Swine Fever; FAO/IAEA, Vienna, Austria on Pest des petits ruminants and Padova Laboratory, Italy on Avian Influenza and ND (Newcastle Disease); CIRAD-EMVT Montpellier, France on Contagious Bovine Pleuropneumonia (CBPP); and the various Pastoralist Organizations in the country. On the whole it was a very active year for the Institute in all its activities as it continues.

Dr(Mrs) L. H. Lombin, MFR

Executive Director,
National Veterinary Research Institute, Vom.

**THE EXECUTIVE DIRECTOR, DIRECTORS OF THE INSTITUTE AND
PROVOSTS OF THE COLLEGES**

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S/No	Name	Position
1.	Dr(Mrs) Lami H. Lombin, <i>MFR</i>	Executive Director
2.	Dr. Adesoji A. Makinde	Director (Diagnostic & Extension)
3.	Dr. Mohammad S. Ahmed	Director (Livestock Services)
4.	Dr. David Shamaki	Director (Research)
5.	Dr. John U. Molokwu	Director (Planning)
6.	Dr. A. O. Olabode	Provost, FCVMLT
7.	Dr. Tai Cole	Provost, FCAH&PT

ASSISTANT DIRECTORS

S/NO	NAMES	DIVISIONS
1.	Dr. J. O. Salami-Shinaba	Outstations & Extension Services
2.	Dr. A. E. Itodo	Monitoring & Evaluation
3.	Dr. P. A. Okewole	Diagnostic
4.	Dr. E. Irokanulo	Bacterial Vaccine Production
5.	Dr. R. A. Ocholi	Quality Control
6.	Mr. Anebi Idoko	Accounts/Finance
7.	Mr. J. N. Zinkat	Administration

LIST AND HEADS OF DIVISION

S/NO	DIVISIONS	HEADS OF DIVISIONS
1.	Accounts/Finance	Mr. A. Idoko
2.	Administration	Mr. J. N. Zinkat
3.	Bacterial Research	Dr. Mrs) M. Muhammad (Acting)
4.	Bacterial Vaccine Production	Dr. E. Irokanulo
5.	Biochemistry & App. Mol. Bio	Mr. A. Atiku (Acting)
6.	Consultancy	Dr. A. Ogunsan
7.	Dagwom Farm	Mr. I. Jibrin
8.	Diagnostic	Dr. P. A. Okewole
9.	Extension and Liaison Services	Dr. L. U. Muhammad
10.	Internal Audit	Mr. Y. Zal
11.	Library and Documentation	Mrs. Eunice O. Yusuf
12.	Livestock Investigation Division (LID)	Dr. N. J. Zwandor
13.	NVRI Staff Primary School	Mr. C. I. Ugbong
14.	NVRI Secondary School	Mrs. G. N. Chima
15.	Parasitology	Dr. G. I. Dogo
16.	Planning, Monitoring & Evaluation	Dr. A. E. Itodo
17.	Poultry	Dr. U. Musa
18.	Printing and Publication	Mr. J. P. Kaigama
19.	Quality Control	Dr. R. A. Ocholi
20.	Security	Mr. J. B. Gajere
21.	Stores	Mr. A. Baso
22.	Viral Research	Dr. T. M. Joannis
23.	Viral Vaccine Production	Dr. C. I. Nwosuh
24.	Workshop	Mr. S. M. Dido

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RESEARCH REPORTS (HIGHLIGHTS/ UPDATES)

1. Animal Disease Surveillance in Nigeria. The place of Geographic Information System (GIS) and Remote Sensing Techniques (RST).

Infectious animal diseases have continued to limit productivity, constrain sustainable development, enhance attendant economic losses in terms of meat and milk, and thus exacerbate poverty. In the livestock industry, the phenomenon of climate change and global warming has been implicated in many occurrences of known and unknown disease conditions. This thus makes it mandatory that current diagnostic tools be improved upon so as to be combat-ready to face the numerous challenges without man succumbing to the outrage of animal diseases that cannot be controlled. The effort, therefore, to bring to fore at this time the GIS and Remote Sensing Techniques (RST) as a diagnostic tool, has become apparent.

In Veterinary Science, the GIS and RST became a viable tool employed by many countries to track outbreaks of disease and plan effective control. In this preliminary study, the spatio-temporal landmass of the Nigeria entity, with composite image of Kaduna and Plateau as comparative images, present clear views of the present vegetation cover of the country and these individual States.

The data currently obtained revealed that the respondent from the States need to give appropriate and up to-date information required on the Questionnaires provided, so that proper analysis can be obtained. The preliminary data gives an indication of the closed observation and efficient data gathering which will ensure adequate derivable information from the satellite images. The study is still in progress.

2. Effectiveness of Scabicur® in the Treatment of Mange and other Skin Infections in Animals

On-farm-adaptive-research (OFAR) on 300 goats naturally infested with ticks, lice and fleas were treated with Scabicur soap and lotion resulting in over 90% cure. Also, 100% efficacy was achieved against *Sarcoptes scabiei var caprei* mites, *Boophilus decoloratus* and *Hyalomma* ticks in Savannah Farms Limited, Bwari, Abuja. Field trials and evaluation of Scabicur® lotion were extended to wildlife at National Park and Zoo. A 95% efficacy was achieved against *Amblyomma* tick and flies infestation on Giraffes, Impala, Zebra, Buffalo and Antelopes.

3. Development of Vaccine against Cowdriosis in small ruminants

In an effort to produce a vaccine against *Ehrlichia (Cowdria) ruminantium*, a field strain of the organism was obtained from an infected ram. Stabilate of the organism was prepared and preserved by snap-freezing in Liquid Nitrogen for further work.

Infectivity and Pathogenicity studies were conducted on the organism and it was found to have low infectivity and pathogenicity and this made it a possible candidate for vaccine production.

With the supply of low temperature automated incubators to the Division, efforts are on to establish *Amblyomma variegatum* colonies for the next stage of the work.

4. Development of Improved Fowl Cholera Vaccine

Fowl cholera caused by the bacterial *Pastuerella multocida* serotype A remains an important disease in the poultry industry in the country and vaccination remains the most cost-effective method of control in areas where the disease is endemic. The poultry industry in Nigeria relies on NVRI to produce Fowl Cholera vaccine for the control of the disease in poultry. However, research has shown that there are 3-sub species of *Pastuerella multocida* isolates that cause Pasteurellosis in animals and hence the need to investigate further into the development of vaccine that will give protection to all sub-species of *Pastuerella multocida* and other serotypes as well. This is with the overall goal of improving and updating the existing Fowl Cholera vaccine currently produced by the Institute.

Bacterial isolates are grown on Blood Agar (BA), MacConkey Agar (MCA), Brain Heart Infusion (BHI). The biochemical characterizations using biochemical sugars were carried out on the vaccine strain and other isolates.

Research on genotypic characterization of the isolate and vaccine strain using molecular techniques, is going on.

5. Update on Newcastle Disease Vaccine (NDV (I₂) Project

A total of seven thousand, three hundred and twenty-two (7,322) vials of Newcastle Disease Vaccine (NVD (I₂) vaccines containing 50 doses per vial were produced in the year 2008. This figure lay credence to the fact that the vaccine is gaining popularity in the field especially among the small-scale rural backyard farmers since the production is done only on request from the field. The Institute has been inundated with more requests and work is going on to meet demand.

In the year 2008, Barkin Ladi Local Government Area of Plateau State was chosen as an adopted experimental station. Several rural communities and villages were selected for field trials of the vaccines under different climatic and management conditions. Differing levels of success under different field and management conditions were recorded based on the evaluation and sero-monitoring investigations.

Representative serum samples were collected from twelve communities and tested for antibodies to Newcastle virus and the vaccine. Results showed that the vaccines were protective. All the vaccinated flocks recorded little or no mortality during the peak of Newcastle disease outbreak for the year 2007/2008. However, some low level of immunity was recorded in some flocks and these were associated with no vaccination, ectoparasite infestations and poor nutrition. The research was jointly funded by Raw Materials Research and Development Council and National Veterinary Research Institute (RMRDC/NVRI).

6. Contagious Bovine Pleuro-pneumonia (CBPP) Antibiotic Therapy Project Update

The project commenced early in the year. It was divided into four stages viz:

- a) Virulence test for *Mycoplasma mycoides mycoides* Small Colony isolates;
- b) Determination of Tylosin and Dexamethazone efficacy in the treatment of CBPP;
- c) Biochemical assay of blood serum of animals experimentally infected with CBPP and;
- d) In-vitro antibiotic susceptibility of *Mycoplasma mycoides mycoides* Small Colony field isolates.

Research Officers connected with this project had undergone one form of training or the other in order to carry out the project effectively. Sixteen isolates of the organism have been identified, propagated, freeze-dried, labeled, and stored, to be used for the initial virulence test. About forty (40) litres of horse serum had been obtained, filtered, aliquoted and stored for use in media preparations for the project. Work is in progress.

7. Avian Influenza (AI) Update

Two isolates of AI virus were recovered from samples received from Kano and Kaduna States in July. They were positively confirmed by Real-Time Polymerase Chain Reaction (RT-PCR) and virus isolation.

The virus isolates were further analyzed by gene sequence analysis of the cleavage site and confirmed to be highly pathogenic. It is however noteworthy that the incidence of the dreaded AI has continued to decline with only two cases diagnosed in the year under review. However, surveillance of this dreaded disease is still going on to provide tentative generation of epidemiological data on the occurrence of Avian Influenza in Nigeria. The banking of confirmed isolates in Liquid Nitrogen and Ultra-low freezers for future advanced biochemical research would still continue.

8. African Swine Fever (ASF) and Foot & Mouth Disease (FMD) Update

Diagnostic laboratory analysis of 7 swine tissue samples received from seven States of the Federation indicated that 4 out of the samples in 4 States were positive for ASF. In addition, 12 out of a total of 187 swine sera received from Delta State tested positive. Similarly, twelve Epithelial tissues and 12 ASF suspected serum samples from Niger, Plateau and Bauchi States were analyzed. Eleven (11) of the 12 epithelial tissues and all the serum samples were positive for FMD. These findings suggest that ASF and FMD are still impacting directly, causing human misery and threatening food security through these diseases in the swine industry.

It should also be noted that fourteen (14) Nigerian epithelial tissues and twenty two (22) sera were sent to the Institute of Animal Health, Pirbright, U.K. The result showed that two (2) FMD serotypes O and SAT2 were confirmed. Surveillance is continuing with a view to mapping out proper control measures in the future.

9. Rinderpest Update

A total of 729 sera were received from the Pan African Programme on the Control of Epizootics (PACE) for Rinderpest sero-surveillance in wildlife. The samples covered eight wildlife parks and game reserves in Plateau, Bauchi, Borno, Niger, Cross River, Taraba, Oyo and Kaduna States. All samples were negative. If samples from wildlife and game reserves in habitats which are known reservoirs of Rinderpest virus are sero-negative, then it implies that the campaign for the eradication of Rinderpest from the African sub-region is succeeding.

10. Potency Testing of Freeze-Dried Anthrax Spore Vaccine

An experiment was conducted on the potency of freeze-dried Anthrax Spore vaccine using Blood and Nutrient Agar and Broth, biochemical tests and viable counts. It was concluded that the organism in the freeze-dried vaccine was *Bacillus anthracis*, non-contaminated and with a viable count of approximately 1.8×10^8 .

This implies that the vaccine is potent and can be used on the field for vaccinating animals (cattle) against Anthrax disease.

11. Production and Standardization of *Brucella abortus* Antigens

Seven batches of Brucella cells were produced. An aliquot of cells from each batch was stained with Rose Bengal dye (for Rose Bengal Plate Test) and tested on known positive and negative sera along side foreign antigens. The result showed that the reaction due to the antigen produced was low compared to that of the foreign antigens. The individually stored batches of Brucella cells would be pooled together, rewashed and centrifuged to obtain more concentrated Brucella cells which would be stained and tested again. The production process was reviewed and the use of class III biosafety cabinet for better results in the future was also considered. The aim of this investigation is to produce a standard antigen for rapid serological diagnosis and determination of prevalence of Brucellosis due to *Brucella abortus* among Nigerian livestock.

12. Nationwide Surveillance for African Swine Fever

A research team in the Institute carried out surveillance for the Agricultural Research Council of Nigeria on African Swine Fever. The Institute's Task Team ran nine hundred and ninety three (993) serum samples and catalogued eight hundred and sixty four (864) tissues from pigs in seventeen (17) States of the Federation. The analyses of the results are still on-going but in the reporting year, over seventy (70) serum samples were positive using Counter Immunoelectrophoresis (CIE) test. This indicates that the disease is still very present in Nigeria.

13. Development of Capripox Vaccines

The freeze-drying of Capripox vaccine seed viruses in large volumes for field trial has been completed. Sheep and goats were repeatedly inoculated with the three Nigerian Capripox vaccine candidates and that of the Cameroonian Capripox vaccine seed virus to produce positive immune sera using the modified Agar-gel immunodiffusion test for the assessment of immune response to the formulated Capripox Vaccine. The investigation is not yet conclusive.

14. Field outbreaks of Peste des petits ruminants (PPR) in sheep and goats and molecular characterization of some strains of the causative virus in Nigeria

Peste des petits ruminants (PPR) also known as goat plague, kata or stomatitis pneumo-enteritis complex is a highly contagious viral disease of goats and sheep primarily.

It is caused by a paramyxovirus of the Genus Morbillivirus in the Family Paramyxoviridae. Survey of PPR disease in all the ecological zones of Nigeria in 2008 involving Akwa Ibom, Bauchi, Edo, Enugu, Kaduna, Kebbi, Osun, Plateau and Sokoto States were carried out. Results indicated that natural PPR outbreaks occurred in all the zones. Two new strains of PPR virus were identified from the natural outbreaks namely Nig. ⁰⁸/₁ PPR strain from Nsukka and Nig. ⁰⁸/₂ PPR strain from Jos. In Nigeria, strains of PPR virus obtained from sheep and goats include Plumb Island, Eruwa, Nig. ⁷⁵/₁; Nig. ⁷⁵/₂, Nig. ⁷⁵/₃ and ⁷⁶/₁. Before this study, no new strains in Nigeria have been made available to add to the ones listed above.

The focus of this work is to collect samples from natural cases of PPR in different ecological zones of Nigeria with a view to examining, isolating, studying the virus and comparing it with the existing strains in the country. There is a need to complete this project including isolation of PPR virus so as to have an update in the PPR strains currently ravaging our animals across the different geo-ecological zones and thus provide a reliable and current molecular epidemiology of PPR in Nigeria.

ACCOUNTS/FINANCE

Activities

The Finance/Accounts Directorate is charged with the responsibilities of:

- a) Formulating Financial Policies in line with the Government Financial Rules and Regulations, Curricular and the Institute's Policies;
- b) Developing and maintaining sound and effective accounting system;
- c) Liaising with all departments to fashion out a budget for the Institute and ensuring that all incomes due to the Institute are received, documented and adequate control measures put in place. It also maintains a sound system of budgetary control, ensures proper documentation and accountability of Institute's assets and properties, advises the Institute's Management on financial matters and provides the Management with timely and accurate financial report and information for decision making.

The Department is made up of the following sections; Salary/Payroll/Advances, Cash Office, Revenue/Sales and Final Accounts Sections. Other sections include, Other Charges, Pension, Budget Formulation and Computer Units.

ACCOMPLISHMENTS IN YEAR 2008

The Division has consistently prepared and presented timely budget for the Institute.

In the year 2008 the following were the Institute's funding requirements:

i) Capital	=	N3,500,000,000.00
ii) Other Charges	=	N 550,000,000.00
iii) P. E.	=	N1,062,386,981.00

However the amounts appropriated were as follows:

i) Capital	=	N2,349,442,786.00
ii) Other Charges	=	N 330,000,000.00
iii) P. E.	=	N 963,804,845.00

The above amount was later amended as follows:

i) Capital	=	N400,000,000.00
ii) Other Charges	=	N338,594,570.00
iii) P.E	=	N963,804,846.00

All machineries to effectively document and account for the Institute's revenue were put in place. The Sales Unit was relocated to the Veterinary Clinic for efficient service delivery to the Institute's customers particularly the Fulanis who had to shuttle from one place to another procuring vaccine.

All sales activities were centralized thus removing all previous impediments and greatly shortening the transaction period.

It is pertinent to note that the total revenue generated from the various activities in the Institute amounted to one hundred and ninety five million, four hundred and sixty six thousand, eight hundred and seventy four naira, eighty two kobo (N195,466,874.82).

Payroll

The payroll has since been fully computerized with salaries of staff being paid online. With the introduction of the e-payment, the use of cash and cheques have been minimized or almost eliminated.

The Group Life Insurance Scheme has continued to be of immense benefit to families of deceased staff of the Institute. The scheme has sustained them in the long interval before pension and gratuity are processed.

Rehabilitation

In the year under review, the Department saw a complete transformation in terms of provision of office furniture and equipment, renovation of offices and generally making the work environment conducive for optimal output by staff. Additional conveniences were provided to staff and all offices are air-conditioned. Additional computers were also procured for enhanced service delivery by staff. The Department has a dynamic in-house training programme arranged by the staff for their own benefit and to meet the official needs.

Project Account

A project account was opened for the Institute in the year 2008 to ease problems of executing Capital Projects particularly those not handled directly by External Contractors. It has been so advantageous to the Institute such that it was able to utilize almost all funds released to the Institute before expiry date of 31st December, 2008.

Future Direction

The Institute's Staff Account with the National Housing Fund is yet to be reconciled. Pressure has been exerted on the Fund and a deadline of 31st March, 2009 had been given to sort out all differences and reconcile the accounts. Staff will then be notified accordingly. Although there is greater improvement on the reconciliation of the Pension Scheme when compared with

NHF, there are still issues to clear with PENCOM especially with regards to Federal Government remitting its share of the 7.5% contribution.

Work on opening the Fixed Asset Register has commenced. The Final Accounts Section and Computer Unit in conjunction with the Institute's External Programmer are coming together to ensure that it is done before the middle of 2009.

In the coming year, the Department hopes to advise Management to introduce more stringent measures to check utilization of handling charges by Outstations.

There is still growing demand for Accountants to be posted to Outstations especially in Akure and Yola laboratories.

ADMINISTRATIVE DIVISION

The Division is charged with the responsibility of assisting the management in the day-to-day administration of the Institute. This includes matters relating to Establishment, Staff Welfare, Maintenance of records, Appointments, and Retirements. Other functions of the Division are handling of promotions, and disciplinary cases and leave matters for Junior and Senior Staff, keeping of staff records, updating Staff Nominal Roll, implementing Institute's policies and interpreting Government Circulars and Regulations.

The Division also keeps records of both the Junior and Senior Staff on Deaths, Dismissals and Termination of appointments. It also handles the Institute's Pensioners covered by the Old Pension Scheme, the Institute's Group Life Assurance Scheme and staff National Health Insurance Scheme.

The Division liaises with the Institute's External Solicitors on the need to perfect the title Deeds of the Institutes Landed Properties. It receives, accommodates, entertains and transports visitors and very important personalities to the Institute in conjunction with other relevant sections/Divisions of the Institute.

During the year under review, the Division recorded 63 Appointments, 174 Promotions for Junior Staff, 9 Advancements for Senior and 14 for Junior Staff. In 2008, three staff retired, six (6) deaths were recorded, while the appointment of six (6) staff were terminated and five (5) resigned their appointments. One hundred and forty seven (147) students were on Industrial Attachment, sixteen (16) Interns were on Internship Training Programme, seventeen (17) graduates were on National Youth Service Corps and one (1) Graduate on NDE Training Programme at the Institute. One hundred and twenty seven (127) Schools/Institutions came to the Institute on educational visits.

On staff training, the Division recorded eighteen Veterinary Research Officers, two Research Officers, four Laboratory Scientists and five others on HND and ND Courses. The Division, during the year, carried out Verification Exercise for Pensioners, and tit-bits on Administrative Procedures. It also organized Seminars on key administrative requirements which are relevant to staff, especially on training, retirement, planning for retirement and payment of entitlements.

The Division attended to all cases, civil or criminal, involving the Institute in the Magistrate, High or Federal High Court and also facilitated the recovery of the Building rented to the then defunct Savannah Bank.

Some of the challenges facing the Division are understaffing, besides obsolete and insufficient equipment which could lower job efficiency.

The Division is poised to improve its activities in the areas of ensuring prompt staff promotion exercise, training and more effective and efficient performance in other routine duties.

BACTERIAL RESEARCH DIVISION

The Division is divided into specific laboratory sections and the following routine activities were carried out in the year under review.

a) Brucella Laboratory

Detection of *Brucella abortus* antibodies

A total of eight hundred and ninety nine (899) serum samples were received, consisting of 861 (cattle), 28 (dogs) 8 (horse) and 2 human sera. Sixty six (7.67%) bovine (cattle) sera were positive for *Brucella abortus* antibodies by Rose Bengal Plate Test (RBPT) and 44 (4.89%) cattle sera were positive by Serum Agglutination Test (SAT). Three (37.5%) horse sera were positive by RBPT and five 5 (62.5%) by SAT. All dog sera were negative by RBPT and SAT while only one human serum was positive by RBPT. Twenty six (26) cattle sera were tested for *Brucella* antibodies by indirect Enzyme-linked Immunosorbent Assay (i-ELISA) and were all positive. Also fifty eight (58) cow milk samples were tested using Milk Ring Test. Only one (1.72%) tested positive for *Brucella* antibodies. These results indicate that *Brucella abortus* infection is prevalent among Nigerian livestock. The infection is serious and can be transmitted between man and animals. The Institute is currently producing vaccine to combat and control the disease in animals

Isolation of *Brucella abortus*

One hundred and sixty nine (169) samples were obtained for *Brucella* isolation. The samples consisted of seven (7) cattle abomasal contents, four (4) stomach contents (3 Horses and 1 goat) 76 vaginal swabs (73 cattle and 3 dogs) 21 Blood samples (7 cattle, 12 Horses and 2 Human). Others are 52 milk samples (51 cattle and 1 Horse). Two samples each from cattle caruncle and joint fluid, one each from cattle amniotic fluid, uterine content, fetal heart, lung and liver. Of all these, two *Brucella* isolates were obtained. Even though the isolation rate was low, brucellosis is still an economically important disease with serious public health implications. Work is going on to improve the diagnosis and consequent control of the disease.

b) Mycoplasma Laboratory

Detection of Mycoplasma mycoides var mycoides antibodies.

In 2008, a total number of 88 sera samples were run using c-ELISA technique and twenty nine (29) of them were positive. Sixty-two (62) of the 88 samples were taken from the experimental cattle for Antibiotic CBPP Therapy Project.

In the same year, 18 lung samples, 40 nasal swabs and 4 pleural fluids were processed for the *Mycoplasma* isolation. Incidentally, only one isolate of *Mycoplasma mycoides var mycoides* Small Colony was recovered from the tissue samples. This result shows that serological diagnosis can be more reliable and sensitive than cultural diagnosis of *M. mycoides var mycoides* infection in this respect. The Institute produces vaccines against the disease and is still working to improve the treatment and control of the disease.

c) Dermatophilosis Laboratory

Diagnosis and treatment of Dermatophilosis (KIRCHI)

A total of 200 skin scabs from cattle, sheep and goats were collected from Jos Abattoir. Cattle samples were mainly from White Fulani breed. Sheep samples were from Yankasa breeds and a few from Uda and Balami breeds. Goat samples were mainly from Kano Brown, Sokoto and Borno White breeds.

Skin scabs were also collected from Zebu Cattle Ranch in Bokkos, WAMCO (West Africa Milk Company), Vom and NVRI Veterinary Clinic in Vom. Results showed that over 90% of the samples were positive for *Dermatophilus congolensis* on direct smear. Over 20 isolates were obtained from the samples. Three isolates each from cattle, sheep and goats were selected for characterization. The nine isolates were subjected to SdS-page with fair resolution of the protein bands. The isolates were also subjected to Polymerase Chain Reaction (PCR) and amplified multiple sequence alignment.

A similarity of 98-99% for all isolates were obtained and all these indicate that the nine isolates from cattle, sheep and goat samples were all *Dermatophilus congolensis*. Meanwhile, the Institute has produced an ethno-veterinary drug (LAMSTREPTOCIDE A&B) for the treatment of the disease in animals. KIRCHI is the local name given to the disease caused by *D. congolensis* in cattle, sheep and goats.

d) Campylobacter Laboratory

Prevalence of Campylobacter infection in cattle and poultry.

To determine prevalence of *Campylobacter* species, samples were collected from 15 cattle Herds from 5 Local Government Areas of Plateau Central and Southern Zones. Poultry cecal samples were obtained from Diagnostic Division, NVRI, Vom. The samples were cultured and isolates were subjected to phenotypic and molecular characterization.

Out of the 15 herds screened, 10 (66.7%) were positive. Of the 104 vaginal swabs tested, 4 (3.8%) were positive. Of the 293 rectal swabs, 28 (17.7%) were positive. Only one (6.7%) of the 15 bulk milk samples tested was positive. Similarly, from 34 chicken cecal samples tested, 21 (61.8%) were positive while 13 (29.5%) were positive from 44 Quail cecal samples tested. Of the 63 *Campylobacter* species isolated from rectal swabs and milk, 51 (81%) were *Campylobacter jejuni* while 12 (19%) were *Campylobacter coli*. The four species isolated from vaginal swabs were tentatively characterized as *Campylobacter fetus/C venerealis*.

PCR was carried out on 21 isolates of the *Campylobacter* species and 13 were confirmed as *C. jejuni* and 8 as *C. coli*.

These findings indicate that *Campylobacter* is prevalent in cattle and poultry in Plateau State. The Laboratory plans to embark on further molecular characterization, antimicrobial sensitivity and virulence studies of the isolates. These studies will be undertaken to determine possible vaccine candidates from the isolates with the possible aim of designing a control programme for Campylobacteriosis in cattle and poultry in Nigeria.

e) **Other reports from the Division are as shown in the Table below:**

Table 1: Other bacterial diseases diagnosed in cattle

Disease Suspect	Animal sp	Samples Tested	Diagnostic Method	No Positive
Tuberculosis	Cattle	3 Lungs	Acid fast stain	1
Listeriosis	Cattle	3 (Lung and Kidney, abomasal content)	Culture	1
Salmonellosis	Cattle	52 (faecal)	Culture	8
Colibacillosis	Cattle	52 (faecal)	Culture	47

BACTERIAL VACCINE PRODUCTION DIVISION

An appreciably significant increase in bacterial vaccine production figure was recorded in 2008. This increase was more than that earlier projected for the year. All the eight bacterial vaccines except Black Quarter Vaccine were produced throughout the year. Lack of screw cap bottles hampered the continued production of Black Quarter Vaccine.

The total combined figure for all the bacterial vaccines was 27,743,780 doses. This represents a 90.91% increase over the production figure of 14,532,060 doses recorded for 2007. Production was at the peak during the third and fourth quarters of the year with the freeze-dried vaccines (CBPP and FTV) recording the highest in demand and production. Production was highest for CBPP vaccine (8,943,500 doses). Tables 1 & 2 show the production figures of bacterial vaccines in 2008 and comparison with 2007 production figures respectively.

Table 2: Animal Bacterial Vaccine Production figures (in doses) in 2008

Month	ASV	BV	BQV	CBPP	FCV	FTV	HSV	HANTAVAC
January	371,600	451,800	906,500	853,100	73,000	293,700	14,880	25,800
February	382,400	-	243,000	441,200	220,800	352,500	42,240	27,320
March	480,400	-	-	-	235,000	316,400	24,000	21,920
April	296,400	-	-	400,500	170,600	759,500	15,680	23,040
May	324,800	-	-	674,400	312,000	1,318,000	73,040	49,880
June	277,600	-	-	784,900	266,000	-	49,000	49,880
July	771,200	-	-	736,800	532,000	453,200	73,440	30,960
August	363,600	375,300	-	291,000	250,600	289,600	23,250	42,200
September	756,000	-	-	1,539,700	294,400	1,109,500	67,120	129,800
October	714,400	440,500	-	1,853,300	287,400	380,200	109,880	32,800
November	745,600	426,500	-	434,400	400,600	-	64,480	-
December	-	-	-	934,200	362,400	343,600	38,800	-
TOTAL	5,484,000	1,694,100	1,149,500	8,943,500	3,395,800	5,615,200	595,800	557,880
GRAND TOTAL	27,743,780							

Table 3: A Comparison of Bacterial Vaccine Production Figures for 2007 and 2008

YEAR	ASV	BQV	BV	CBPP	FCV	FTV	HSV	HANTAVA	TOTAL
2007	1,512,600	1,628,000	682,100	4,948,800	1,142,800	4,306,700	188,580	122,480	14,532,060
2008	5,484,000	1,149,500	1,694,100	8,943,500	3,395,800	5,615,200	595,800	557,880	27,743,780

Experimental studies carried out during the period under review in the Division include the development of Tetanus Toxoid (Vaccine) from local isolates of *Clostridium tetani* against Tetanus in Horses. This is still on-going. The Division concluded a comparative experimental study on Growth of *Clostridium spp* in Lab Lemco Media and freshly prepared Meat Infusion Broth.

Work has also been concluded on the stability test of the (Fowl Cholera Vaccine) FCV adjuvant vaccine using the SEPPIC ISA 70 VG Adjuvant.

The Division is collaborating with SEPPIC, France on adjuvant design vaccines for the liquid bacterial vaccines and Emulsion Stability Testing of the adjuvant vaccines.

Work in the Division was enhanced with the procurement and installation of one Class 2 Laminar flow cabinet, Air Conditioners in the Division's corridors and laboratories and procurement of large quantities of media reagents, chemicals and other consumables through DUE PROCESS procurement.

Two Staff of the Division are currently undertaking M.Sc training and other staff members attended conferences and in-house seminar training. One of the officers participated at a short training at CIRAD on CBPP Diagnosis between 14th and 28th November, 2008. Publications by staff of the Division are reflected under general list of publications for the year 2008.

Future direction

The Division has projected a minimal 30% increase of bacterial vaccine production over the 2008 production for the coming year. Plans are also on to build a new and modern Bacterial Vaccine Production Laboratory.

BIOCHEMISTRY AND APPLIED MOLECULAR BIOLOGY DIVISION

Activities in the year under review:

(a) “Compositional studies and Nutritional Potentials of some Lesser Known and Unconventional Feed Sources”.

The preliminary proximate analysis of various seeds (*Moringa Oleifera*, *Hibiscus*, *Amaranthus*, *Sesame*), Nitrogen solubility studies and anti nutritional analysis was concluded. The next stage of the research work would continue as soon as pepsin is made available.

(b) “Investigation of Veterinary Drugs Residues in Food Animals in Nigeria”,

Preliminary trial was done to adopt qualitative tetracycline screening method using test rats dosed with tetracycline. The project was halted at the confirmatory tests stage involving the use of High Power Layer Chromatography (HPLC), which broke down and required replacement.

(c) FAO/NVRI TCP on Avian Influenza (AI) Surveillance:

This was a national surveillance program covering 11 States that were declared AI non-infected States. They are Abia, Akwa Ibom, Bayelsa, Cross Rivers, Ebonyi, Gombe, Kebbi, Kogi, Imo, Ondo and Osun. A total of one thousand, two hundred and ten (1210) tracheal and cloacal swabs specimens were collected from live bird markets and analyzed by Reverse Transcriptase-Polymerase Chain Reaction (RT-PCR) as the confirmatory test for the presence or absence of AI in these States. Preliminary results have been released to the Viral Research Division for due processing of report to the appropriate body.

Training Programme

1) African Swine Fever (ASF) Training Course:

A ten-day (14th-24th July,2008) training course on laboratory ASF diagnostic techniques was conducted in the Molecular Biology Laboratory organised by the Institute in collaboration with two International Research Organizations (Centro de Investigacion en Sanidad Animal CISA-INIA, Madrid, Spain and International Livestock Research Institute, ILRI, Nairobi Kenya). The members of staff of the Molecular Biology Section served as facilitators in the training program. The diagnostic techniques reviewed include ELISA, virus isolation and Polymerase Chain Reaction.

2) **NEF-NVRI Toxicology Internship Program:**

NEF-NVRI Toxicology Internship programme, a collaborative training programme between the Institute and the Nduaka Education Foundation (NEF), a USA based non-governmental organization, was organized and held for 3 months between May and August, 2008 in the Institute. The programme was designed, coordinated and implemented by the Division.

Routine Analysis:

A total number of 1076 samples of various grains, nuts, flour, feeds, fish and blood meals, plants, vegetables, fruits and animal faeces samples were received and analyzed for various nutritional analysis which included; proximate, bromate, acidity of extracted fat, acid value, iodine number and acid insoluble ash. The monetary value for the analysis was one million and ninety six thousand five hundred and fifty naira (N1, 096,950.00) only.

Chemical analyses of 150 blood, stool, urine, beverages, seeds, milk, detergents, lotions and vaccine samples were conducted for the Institute and other 94 commercial samples. A total of two hundred and forty four (244) samples were analyzed for various parameters.

Routine biochemical analysis of water samples from the Institute's Water Treatment Plant/Reservoir were also carried out on a daily basis. Two thousand one hundred and seventy nine (2179) water samples were analyzed for permanent hardness, pH, coagulation test and residual chlorine. The monetary value for the above analysis is three hundred and ten thousand, nine hundred and sixty naira (N310, 960). The result showed normality of water supplied by the Treatment Plant.

Toxin levels were analyzed in a total of 3,021 plants, water, soil, grains, nuts, vegetables, seeds, foods, silage and rumen materials for bicarbonates, sulphates, oxalates, tannins, cyanide, chlorides, aflatoxin, phytic acid, heavy metals, pH, extraction and phytochemical screening. The monetary value for Institute's samples analyzed was one million five hundred thousand naira (N1,500,000.00) only; while for external samples it was one hundred and sixty two thousand, eight hundred and fifty naira (N162,850.00) only.

Reverse Transcriptase-Polymerase Chain Reaction (RT-PCR) or core Polymerase Chain Reaction (PCR) was carried out on a total of one hundred and seventy three (173) cloacae/ tracheal AI suspected samples; ten (10) FMD suspected samples; one hundred and forty four (144) parvo virus suspected samples; thirty four (34) Mycobacterium suspected samples; thirteen (13) NDV suspected samples and thirty six (36) Campylobacter-suspected samples within the period under review for genotyping and characterization of these animal pathogens.

Constraints:

The Division needs a -70°C deep freezer for proper storage of samples; 2 refrigerated micro centrifuges; 2 bio-safety cabinets and training of more staff. Much work and more revenue could have been generated but due to non-functional status of the Atomic Absorption Spectrophotometer (AAS) in the Division. For this reason, samples were only digested and taken outside for analysis.

Absence of some key materials, chemicals and reagents to carry out some of the tests needed was another constraint.

It is however worthy to note that rehabilitation of the Division's building is going on with necessary infrastructure to be put in place along with provisions of other needed amenities/facilities to enhance operations.

CONSULTANCY UNIT

The Unit, under the supervision of the office of the Executive Director, was set up late 2007. The activities undertaken by the Unit in the year under review were:

Ambulatory Services

The Unit was able to create awareness and generate some revenue for the Institute. The Ambulatory Service Unit visited a number of farms in Plateau, Nasarawa and Bauchi States in 2008.

Training

A team from the Unit visited National Board for Technical Education (NBTE) Kaduna seeking for approval to commence Post Graduate Diploma (PGD) Programme. The Unit is still working on the PGD Programme Curriculum which is a pre-requisite by NBTE before the commencement of the Programme.

Other Services

Good patronage and substantial revenue was recorded in the renting of chairs, canopies and tables belonging to the Institute. Also, the Unit acquired a die-cutting Machine (Letter-Set 13x18) for die-cutting cardboard papers for vaccine packaging. The machine has been installed and awaiting operation. The Unit pursued vigorously its registration with the Corporate Affairs Commission and the certificate is being awaited.

Future Direction

This revenue generating unit was given approval to engage in the disposal of waste from both senior and junior staff quarters. Also, the Unit received approval to commence weekend certificate course in Poultry/Beef Production in collaboration with FCAH&PT. These two operations are expected to take off in the year 2009.

DAGWOM FARM

The Farm, in the year under review, engaged in the production of quality livestock feed for experimental animals to support vaccine production, production of pelleted feeds for rabbits, rats, mice and guinea pigs, production of full fat and soya bean cake and production of crude soya oil.

The Farm also engaged in the multiplication of rabbits and served as distribution center of exotic breeds for all interested farmers, Institutions, Colleges, government and non-governmental organizations nationwide. It was also involved in the development of disease resistant breeds through a massive cross-breeding programme.

Furthermore, the Farm fabricated Kerosene Incubators for hatching poultry eggs and construction of other equipments such as rabbit hutches, drinkers and feeders. These are largely designed for Small and Medium Scale entrepreneurs involved in poultry and rabbitry farming. The Farm also carried out consultancy service to set up Incubators and other necessary maintenance work in the Institute.

Farm Development

Development in the Farm include acquisition and installation of Feedmill machine with 2-ton capacity per hour, recasting of the entire floor and basement of the rabbit houses, acquisition of two (2) sets of fabricated extruder worms and recasting of floor and basement of four (4) store houses.

Achievement

The Farm generated revenue in the year under review by selling a total of two hundred and seventy two (272) rabbits, forty-one Kerosene Incubators, produced four hundred and ninety four (494) tons of animal feeds and eleven thousand, one hundred and ninety seven (11,197) litres of crude soya oil by-product. The Farm has twelve (12) senior and twenty four (24) junior staff.

DIAGNOSTIC DIVISION

The necropsy unit/building was upgraded, standardized and the incinerator was also rehabilitated and serviced. Non-consumables such as computers, stabilizers, and accessories for Local Area Network (LAN), air-conditioners, wardrobes, cupboards, hangers, and boots were also provided.

A borehole was sunk and a 30,000 litre capacity over-head tank was installed. A new plumbing system was laid to facilitate better supply of water to the Division.

Histopathology, parasitology, clinical pathology, bacteriology and wash-up units were all renovated. Items such as ductless fume cabinet, bio-safety cabinets, freezer, PH meter, air-conditioners, stools, different reagents for isolation and characterization of microbes and laboratory coats were also provided.

A well equipped laundry unit was created and equipped with necessary facilities, and personnel to man the unit.

Other amenities provided include a V-sat, landscaping of the environment, installation of floating lights, and digging of new pits for disposal of incinerated carcasses.

LABORATORY ACTIVITIES

Bacteriology and Mycology Unit

A total of 567 specimens were received from all over Nigeria and also from West and Central Africa since NVRI is now a regional laboratory. The specimens were processed and 517 bacterial and fungal isolates were obtained from 9 different species of animals. The table below gives a summary of the microbial organisms isolated from the different animal samples.

Table 4: Summary of the number of specimens and microbial organisms isolated from animals.

S/N	ANIMAL SPECIE	NO OF SPECIMENS RECEIVED	MAIN ORGANISMS ISOLATED
1.	AVIAN (Poultry)	396	<i>Escherichia coli</i> <i>Streptococcus faecalis</i> <i>Staphylococcus aureus</i> <i>Klebsiella aerogenes</i> <i>Salmonella gallionam</i> <i>Coaguase negative stapphylococcus</i> <i>Ps. aeruginosa</i>

			<i>Klebsiella spp.</i> <i>Proteus mirabilis</i> <i>Shigella flexneri</i> <i>Micrococcus spp</i>
2.	BOVINE (Cattle)	43	<i>Escherichia coli</i> <i>Streptococcus faecalis</i> <i>Staphylococcus aureus</i> <i>Klebsiella aerogenes</i> <i>Bacillus spp</i> <i>Proteus mirabilis</i> <i>Clostridium tetani</i>
3.	CANINE (Dog)	13	<i>Escherichia coli</i> <i>Streptococcus spp</i> <i>Streptococcus pneumonia</i> <i>Ps. aeruginosa</i> <i>Bacillus spp</i> <i>Pseudomonas spp.</i> <i>Klebsiella pneumonia</i> <i>Micrococcus spp.</i> <i>Clostridium spp.</i> <i>Klebsiella aerogenes</i> <i>Bacillus firmus</i>
4.	CAPRINE (Goat)	30	<i>Escherichia coli</i> <i>Ps. aeruginosa</i> <i>Streptococcus faecalis</i> <i>Klebsiella aerogenes</i>
5.	EQUINE (Horse)	4	<i>Escherichia coli</i> <i>Klebsiella aerogenes</i>
6.	PISCES (Fish)	3	<i>Escherichia coli</i> <i>Ps. Aeruginosa</i>
7.	LAPRINE (Rabbit) (Grass-cutter)	27	<i>Escherichia coli</i> <i>Ps. aeruginosa</i> <i>Streptococcus faecalis</i> <i>Klebsiella aerogenes</i> <i>Bacillus firmus</i> <i>Staphylococcus spp</i>
8.	OVINE (Sheep)	12	<i>Escherichia coli</i> <i>Streptococcus faecolis</i>
9.	PORCINE (Swine)	3	<i>Escherichia coli</i> <i>Streptococcus faecolis</i> <i>Staphylococcus aureus</i>

Virology Unit: A total number of 238 suspected rabies cases were handled. Highest number of cases came from dogs (234) while two came from cat and two from cattle. Of these, 175 (74.75%) were positive while 59 (24.79%) were negative and 4 (1.71%) were unsuitable for examination. Although dogs were the main species of animals affected the cases from cats and cattle were confirmed. The Institute is producing vaccines to control Rabies in the country.

The vaccines are made available to State Governments and Veterinary Practitioners for campaign awareness to vaccinate cats and dogs on yearly basis.

Parasitology Unit: A total of 502 samples were received by the laboratory as against the previous year (430). These consisted of 409 (81.44%) faecal samples, 76 (15.34%) whole blood samples, 11(2.19%) brain samples and 6 (1.20%) were Ectoparasites for identification. Out of the 502 samples, 262 (52.19%) were avian samples, 151 (30.1%) were bovine samples while the remaining 89 (17.73%) were from the other animal species put together. Table 5 shows the breakdown of the number of samples received from different animal species.

The commonest parasites identified in the faecal samples were *Eimeria sp.* This occurred throughout the year in almost all the animal species more especially in avian species. Other parasites identified *Oesophagostomum radiatum*, *Strongyloides papillosus* in cattle, *Ascaridia galli* in poultry, *Oesophagostomum columbianum*, *Moniezia expansa* and *Haemonchus contortus* in sheep and goats. *Cowdria ruminantium* was also identified in a cattle brain samples Examination of some blood samples revealed *Babesia bigemina* and *Anaplasma marginale* in cattle and *Babesia canis* in dog samples. Furthermore, two species of ticks, *Amblyomma variegatum* and *Rhipicephalus* species were identified from field samples.

Table 5: The number of samples received from different animal species on monthly basis for parasitological examination.

MONTH	AVIAN	BOVINE	CAPRINE	OVINE	LAPRINE	CANINE	FELINE	EQUINE	PORCINE	TOTAL
JAN	17	3	-	-	2	1	-	-	-	23
FEB	19	6	3	-	5	-	-	-	-	33
MARCH	16	4	10	-	5	-	-	-	-	35
APRIL	34	1	-	-	3	-	-	-	-	38
MAY	39	8	2	-	2	-	-	-	-	51
JUNE	37	6	-	1	8	-	-	-	1	53
JULY	26	9	2	3	2	1	-	-	-	43
AUG	12	-	2	2	1	-	-	1	-	18
SEPT	14	60	-	3	-	-	-	1	1	79
OCT	22	45	4	1	1	6	-	1	-	80
NOV	14	5	1	-	-	8	-	1	-	29
DEC	12	4	-	2	-	-	-	1	1	20
TOTAL	262	151	24	12	29	16	-	5	3	502

Clinical Pathology: The unit is made up of the Haematology and Clinical Chemistry units. In the Haematology unit, a total of 401 samples were received and analyzed. About 45.40% were samples from poultry, 32.3% from cattle, 1.20% from dog, 1.5% from goat, 1.8% from horse, 16.5% from rabbit and 0.5% were from Human samples. In the Clinical Chemistry unit, a total of 290 sera samples were received for determination of biochemical values.

Histopathology Unit: A total of 894 tissue samples were processed for histological examination in the year under review.

Of these 155 specimens were from dogs, 142 from poultry species, 42 from cattle, 30 from rabbits, 18 from goats, 8 from rats, 7 from sheep, 4 from horses, 2 from swine and 1 from fish. This unit gave support for a final diagnosis of cases handled.

Necropsy Unit: This is the hub of the activities in the Division. A total of 1885 cases were received. One thousand seven hundred and forty four (1744) were from poultry, 48 from cattle, 31 from dogs, 30 from fish, 11 from rabbits, 7 from swine, 3 from sheep, 2 from horses and 2 wildlife cases were handled.

Different diseases were diagnosed during the period under review in the animal species presented. In poultry, important diseases diagnosed were Coccidiosis, Newcastle disease, Marek's disease, malnutrition, fatty liver diseases. Others were helminthiasis, obesity, heat stress, asphyxiation intussusception and intestinal obstruction. However, it should be noted that the most prevalent disease-causing organism in chickens is bacteria. In 2008, Colibacillosis/Colisepticemia and fowl typhoid were prominent in poultry diseases investigated. In cattle, the main diseases were Helminthiasis, Brucellosis, Trypanosomiasis, Contagious Bovine Pleuro pneumonia, Lumpy Skin Disease and Cowdriosis. Colibacillosis was recorded in goat, rabbits, swine and sheep.

Epidemiology Unit: The unit is generally involved in disease survey, animal disease surveillance, and data analysis. The unit is presently working on the spatial distribution and livestock disease surveillance within the Nigeria ecosystem.

Large Animal Experimental Station: The following investigations are still ongoing.

- a) Development of Capri pox vaccine by Viral Research Department.
- b) Onset and duration of immunity of PPR vaccine.
- c) Antibiotic therapy of bovine experimentally infected with Contagious Bovine Pleuro-pneumonia (CBPP) agent.

Small Animal Unit: The unit is involved in the breeding of experimental animals for diagnostic and research purposes. The unit generated a sum of N329,600.00 (Three hundred and twenty nine thousand, six hundred naira) from sale of experimental animals. This sum excludes the cost of experimental animals issued to the various units within the Division and other Divisions in the Institute.

VETERINARY EXTENSION & RESEARCH LIAISON SERVICES

The National Veterinary Research Institute (NVRI) reaches all livestock and poultry farmers in Nigeria through the Veterinary Extension and Research Liaison Services (VERLS). The task is to disseminate proven animal health technologies for adoption. This is to improve livestock and poultry health and productivity, providing the much needed animal protein and increasing disposable income to farmers.

The Division reaches farmers through the OFAR (On-Farm-Adaptive-Research-trials), MTRM (Monthly Technology-Review-Meeting) and Surveys.

Other areas of reaching them are:

- a) Training Workshops/Meetings,
- b) Publication (radio programs and printed materials) and
- c) WIA (Women-In-Agriculture)

The Division participated in the following trainings in the year under review:

- a) Extension training conducted by NAERLS (ABU-Zaria),
- b) Geographic Information System (In-house),
- c) Proposal Writing (In-house),
- d) Epidemiological methods (In-house) and
- e) Standard Operating Procedures (SOP) training (In-house).

A total of 26 radio programs on different aspects of livestock health, management and production were produced “Muleka Rugage”, (let’s visit the pastoral camp) for FRCN Kaduna mainly for Hausa-speaking listeners and farmers.

The Division printed posters and leaflets and NVRI Info, a quarterly Magazine of the Institute, NVRI News Bulletin and Extension guides. All these publications are intended to create more awareness and educate livestock and poultry farmers about disease surveillance, treatment and control. These are ways of meeting the mandate of the Institute.

Advocacy visit to Plateau ADP was carried out and it was found, that women are very much interested in rabbit production.

The staff strength of the Division is ten (three veterinarians, six technical and one junior staff). The Division needs a computer-literate Secretary to handle secretarial activities of the Division.

FEDERAL COLLEGE OF ANIMAL HEALTH AND PRODUCTION TECHNOLOGY

The cardinal objectives of the College are to produce:

- a) Technical manpower in the areas of Animal Health and Production;
- b) Knowledge and skills essential for livestock and development projects;
- c) Men and women, knowledgeable in the field of Animal Health and Production who could effectively utilize their training to establish and manage their own livestock farms to maximum advantage and;
- d) Extension staff that could bring the technologies of agro-veterinary research to the livestock farmer and feed back the farmers' problems to the appropriate authorities for solutions.

The main activities of the College are teaching, research, veterinary and extension services. The student population at the end of the year under review was 623. The number of students admitted for Pre-National Diploma was 123, National Diploma III, Higher National Diploma I (AH) 31, HND I (AP) 48, HND I (AEM) 50, Certificate in Poultry Production (130) and Certificate in Beef Production (130). The Matriculation ceremony was conducted on August 13, 2008. Furthermore, all the results of examinations conducted in 2008, have been considered, approved and released by the Academic Board of the College with few cases of examination malpractices. The Board upheld the expulsion of students found guilty as recommended by the Students' Disciplinary Committee in accordance with the Rules and Regulations of the College.

In 2008, a five-week training in agricultural enterprises was organized by the College for eighty six (86) youths drawn from the Federal Capital Territory (FCT) (24) and Nasarawa State (64). The training was a Federal Government project aimed at empowering youths in agricultural enterprises. Forty (40) were trained in Livestock Fattening while forty six (46) were trained in Poultry Production. It is noteworthy that the College was highly commended by the team of visiting consultants who came from Abuja to monitor the programme in 2008.

The College expects subsequent batches of trainees from other States of the Federation on regular basis.

The final year students went for excursions to various Institutions namely NAPRI and CHELTECH both in Zaria, ZATECH in Ibadan and ARMTI in Ilorin. The total number of cases handled by the Veterinary Clinic of the College was 2,013, 389, 19, 24, and 10 from dogs, cattle, sheep, goat and, poultry respectively.

Cases commonly encountered were Helminthoses and Hemoparasitism mainly in cattle, sheep, goats and dogs. Coccidiosis and Newcastle diseases were encountered in poultry.

Others are Dog bite, Ectoparasitism, Abortion and Myiasis in dogs; Metritis Brucellosis in cattle and dogs; Pneumonia, Cowdriosis, Pasteurellosis, Bloat, Foot-and-Mouth Disease and Cloistridial infections in cattle; Peste des petits ruminants (PPR) in goats and coccidiosis, fowl typhoid and Newcastle disease in Poultry. The Clinic also vaccinated a total number of three hundred and three (303) and sixty three (63) dogs against Rabies and Canine Distemper respectively.

The Institute allocated a large piece of land to be developed as the College farm. The land would be demarcated into paddocks for the establishment of improved pasture for livestock production. Presently, the College owns a demonstration farm for students' practical work.

About 22 members of staff of the College are under-going in-service training in various Institutions of higher learning in the country. These are 5 for Ph.D. 12 for M.Sc. 2 for B.Sc. one for PGD, one for HND and one for ND. This is to enhance staff capacity building in the College.

The NBTE re-accreditation team visited the College in May, 2008. All the five academic programmes of the College were reaccredited by the NBTE. A total of sixty (60) staff from the College attended conferences and seminars/workshops in the reporting year.

The 2008 Appropriation is as follows:

Personnel emolument	-	N211,816,974.00
Overhead/Other Charges	-	N 65,579,494.00
Capital	-	<u>N221,212,500.00</u>
Total	=	<u>N498,608,968.00</u>

The internally generated revenue through tuition fees, vocational training and other income amounted to sixteen million, five hundred and ten thousand, nine hundred naira (N16,510,900.00). The College produced a special edition of the College Bulletin "the Pioneer" in May, 2008. The Bulletin was circulated and it reflected the activities of the College over the year.

Execution of Projects

Following the due process, all the 2008 Capital Projects and 2007 Education Training Fund (ETF) Intervention Projects were fully executed and paid for.

The Capital Projects executed include procurement of a tractor and its accessories, construction of lecture halls, laboratories, Staff offices (on-going), rehabilitation of student hostels, Board room, Student clinic, procurement of buses for educational trips and utility vehicles. Others are procurement and housing of a sound-proof generator, construction of a vocational training centre in Animal Production and construction of a vocational training centre in Animal Health (on-going). The ETF 2001 Intervention Projects awarded in the reporting year included the procurement of a mobile milking machine and its accessories and also a tractor and its accessories.

FEDERAL COLLEGE OF VETERINARY AND MEDICAL LABORATORY TECHNOLOGY

The College, which started in 1956 as a Laboratory Technology Training School in Vom with a mandate to produce middle level manpower for the Institute's Laboratories, transformed through the years to become the Federal College of Veterinary and Medical Laboratory Technology, Vom.

The College has eight Technical Departments. These are: Bacteriology, Chemical Pathology, Haematology and Blood Group Serology, Histology and Histopathology, Livestock, Molecular Biology, Parasitology and Virology Departments. The five non-technical departments are; Administration, Accounts, Audit, Library and Consultancy. The Technical Departments are responsible for the overall training of students with reference to organizing lectures, seminars and practical classes as required by the Medical Laboratory Science Council of Nigeria (MLSCN) the regulatory body which also awards certificates to various Courses run by the College.

Activities

The College runs courses approved only by the Medical Laboratory Science Council of Nigeria (MLSCN) based on the approved entry requirements and duration of all courses. Also, the College has been found suitable to run Degree Programs in the Veterinary and Medical Laboratory Sciences. The College conducts training in the following areas;

- 1) Two-year Veterinary and Medical Laboratory Technology Assistant course (MLA)
- 2) Three-year Veterinary and Medical Laboratory Technician course (MLT)
- 3) Two-year Graduates Studentship course leading to the award of Associateship Certificate of Medical Laboratory Science Council of Nigeria.
- 4) One-year Fellowship of Medical Laboratory Science Council of Nigeria.
- 5) Five-year Bachelor of Medical Laboratory Science (BMLS) programme (On Hold).

It is pertinent to note that in the year 2008, the College admitted 371 students and graduated 171.

Laboratory Activities

Also, within the year under review, the College established a Molecular Biology Laboratory and introduced lectures on Applied Biotechnology and Molecular Biology Techniques.

A total of 1,872 samples from human and animal species were assayed for Chemical Pathology parameters. Also a total of 2,133 blood samples of animals and man were tested for various haematological values. Similarly, 1,484 blood, 162 stool and 151 skin samples from animals and man were examined for parasites of economic importance. Viral infections were also screened for. The College screened 357 samples for RVS, 226 samples for Hepatitis B and eight (8) for Hepatitis C.

Also, a total of 4,251 samples comprising stool, sputum, urine, blood, HVS, skin scrappings, swabs-pus, semen, urethral swabs and mantoux were examined for bacteriological culture and microscopy.

The College consultancy/clinic attended to 1,306 patients for different ailments.

In the Library there are a total of 532 Textbooks, 662 Periodicals, 783 Student's Projects and 7 Annual Reports.

The Accounts insured all the College's Vehicles, Fixed Assets coded along with assets revaluation while the Audit Department audited the monthly vouchers, quarterly accounts and other accounts records of the College.

Staff Training

Most members of staff attended their yearly mandatory continuous development education programmes and workshops on their related fields. The College also organized seminars for staff. A total of 26 members of staff were on various Courses. Twelve (12) papers were published in peer-review journals by staff.

Challenges

Specific areas of challenge are finance, space, personnel, reagents and relevant equipment.

The College lost two of her staff, Mrs. Tina Aliu and Miss Grace G. Jatau.

INTERNAL AUDIT DIVISION

The Division is vested with the responsibility of:

- a) Ensuring, compliance with rules, regulations and procedures in the conduct of government business;
- b) Making unbiased examination of books of accounts and records of the Institute with the aim of ensuring adequacy and accuracy;
- c) Ensuring proper documentation and accountability of the Institute's assets and;
- d) Reporting and advising management through the Executive Director if and where necessary.

The specific activities carried out by the Division in the reporting year were divided into three operational duties;

- a) Prepayment audit;
- b) Post payment audit and;
- c) Management audit.

The Division was able to carry out prepayment audit almost 100%. Books and records of all financial transactions of the Institute were also examined from revenue generating points. The staff nominal roll was examined and compared with the payroll to ensure conformity and necessary reconciliation. Regular checking of staff monthly salaries was achieved and the Division liaised with the External Auditors to evaluate the internal control system to discuss areas where improvements were needed. The Division was also able to observe most of the Institute's procurements to ensure compliance with government specifications and due processes.

In 2008, the Division had complete renovation of their offices, received two desktop computer systems and an additional office to enhance productivity and efficiency. The staff prayed the Management to provide training through attendance of seminars and conferences relevant to their functions.

The Division planned to have faster and better results in the areas of:

- a) Evaluating the efficiency of operations;
- b) Personnel Auditing;
- c) Fixed Asset Verification and;
- d) Investigative Auditing.

LIBRARY AND DOCUMENTATION DIVISION

The Division's cardinal responsibility is to collect, organize and make available information that readily meets the need of the Institute's staff and other Library clientele on referral visits. The information resources are materials of research value in the field of Veterinary Medicine and allied fields of sciences and technology.

The functions of the Library are basically to provide research scientists, extension workers and students from tertiary institutions access to information relevant to their needs in the right form and at the right time. The Library was able to establish a computerized information system which provides easy access to the current information on Animal Health and Production from all over the world. The activities also included the compilation of comprehensive annotated bibliography of scientific research publications of the Institute from inception up to year 2008 which is still on-going.

In order to live up to its expectations, the Library purchased 160 books, received another 55 as donation and 2 Theses from staff of the Institute. All these were classified and catalogued accordingly. In the serials section, subscription of journals improved tremendously with 55 journal titles received. This was a remarkable progress as compared to previous years.

The Library also carried out collation, compilation and binding of all unbound journals and provided reference and bibliographic services to staff and others on referral visits.

Training

The Library organized training for the Institute's staff on the use of electronic databases between May, 19th and June, 2nd, 2008. An in-house training of Library staff on the use of e-resources also took place. With the establishment of the e-library, the Library generated the sum of forty nine thousand, four hundred and five naira (N49,405.00) as revenue for the Institute from the printing of articles.

Two members of the Library staff completed their post graduate training in Library Science (MLS&Ph.D) degrees. A staff attended a professional conference on electronic cataloguing and classification to enhance performance. Three additional Computer sets were given to the Division to boost and facilitate performance and services to library users.

The future direction is the automation of Library resources. Some of the challenges facing the Division are;

- i) Lack of Scanner to help in preparing documents for full automation of Library resources;

- ii) Awaiting the On-line Public Access Catalogue (OPAC) to take off and;
- iii) Poor attendance to professional conferences and Seminars by Librarians.

Functions and responsibilities of this Division are:

- 1) Research into improved livestock production technologies
- 2) Production of livestock for research in all aspects of animal diseases
- 3) Production of animals for vaccine development, production and testing
- 4) Introduction of animal breeds for improved milk and meat production
- 5) Training of middle level manpower in Animal Health and Production Technology
- 6) Pasture development and forage production and
- 7) Provision of modern animal facilities for student industrial experience and livestock farmer education.

The species of animals reared by the Division are cattle, sheep, goat, horses and poultry.

Most of the research activities handled by the Division are on-going. These include:

- a) Evaluation of homologous PPR vaccines on small ruminants, in collaboration with Viral Research Division;
- b) Farm animal disease surveillance (Cutaneous Bovine Papillomatosis was detected and identified);
- c) Production of vaccine against Cutaneous Bovine Papillomatosis in collaboration with Virology Division and
- d) Assessment of the viability and some agronomical practices of some pasture legumes.

In the year 2008, a total of 36 young bulls with an average weight of 250kg were released to Bacterial Vaccine Production Division for vaccine production. Also, a total of 84 cross bred HF x WF calves comprising forty two (42) 50% and 41.25% Holstein Friestan x White Fulani calves were produced through natural breeding with high quality Friesian bulls for improved dairy production as part of the integrated Livestock Health and Peri-urban Dairy Project. Maize silage production increased by 100% from 600 metric tones in 2007 to 1200 metric tonnes in 2008.

The Division developed an additional 14 hectares of Rhodes grass (*Cloris gayana*) and Guinea grass paddocks to further provide seeds for extension services and grass silage. There was also marked improvement in pasture seed production especially Rhodes grass and legume seeds.

The Division exceeded the target of 500kg of Rhode grass seeds and produced 640kg in 2008. Also, a total of 60 hectares of Improved Pasture was developed jointly with NAPRI and IDF through AWIS Public Private Partnership programme.

Evaluation of semen quality of Artificial Insemination (AI) bull, pure bred in NVRI Vom for semen production is on going. Some bulls have been specially selected for this, nevertheless the On-Station and On-Farm insemination trials will commence in 2009 for fertility testing.

It is pertinent to note also that the Liquid Nitrogen production which stopped in the last quarter of 2007 due to breakdown of the Gas Column together with a poorly functional Cryogenerator was rehabilitated and restored. A new Gas Column was purchased and installed while the Cryogenerator was overhauled and the Plant relocated. The Plant now operates at near installed capacity of eight (8) litres of Liquid Nitrogen per hour for semen storage and other uses.

However, the constraints of the Division included unsteady light and water supply, lack of telephone and Internet services, insecure perimeter fencing and paddocks, use of obsolete agricultural implements and need for an agronomist and more office accommodation. The Management is already addressing these constraints.

In the coming year, the Division has projected increase in the production of animals, milk, vaccine, feeds, silage, hay and pasture seeds, as well as animals for demand-driven research activities in the Institute.

NVRI STAFF SECONDARY SCHOOL, VOM

The Staff Secondary School was established with the mandate to become a foremost (Day) Secondary School within the State and the nation at large, producing quality, sound and holistic education for future generation.

Activities being undertaken by the school apart from teaching include, Educational Visits/Excursions, Counseling Session and Sports for student development. Others are:

- 1) Attending of Workshop/Seminars to keep the teachers professionally updated and
- 2) Conducting Examinations (Internal and External).

The yearly Inter-House sports competition was held on 7th March. The occasion was graced by the Management, staff, parents and other important dignitaries within and outside Vom. The 2008 Annual Speech and Prize Giving Ceremony took place on 23rd July. Students who excelled in various fields were acknowledged and rewarded.

Academic activities commenced on the permanent site of the Secondary School on 22nd September, 2008. With this positive development, the working period for the school was adjusted to 8.00a.m – 4.00p.m daily. A compulsory feeding programme for the students was introduced by the Management to enable the students cope with the intensive academic work.

New teachers were employed to improve the staff strength and also for the newly introduced subjects. They are:-

Mrs. P. K. Choji	-	Mathematics
Mr. J. N. Ghelshik	-	Physics
Mrs. K. Oyebade	-	Chemistry
Mrs. V. C. Davou	-	English
Mr. S. G. Choji	-	History
Mr. S. C. Arinze	-	Biology
Mr. J. Y. Nyango	-	French
Mr. G. D. Gyang	-	PHE

The school recorded other achievements in 2008. Students who accessed their results from the Internet reported very encouraging feedback. Similarly the level of discipline has improved among students as a result of the concerted counseling programmes being undertaken in the school. Also, success recorded from enforcing acquisition of relevant text books by the students was consolidated upon.

However, there are other areas of need by the School. These include the need for a functional Parents'/Teachers' Association (PTA) to partner with the Management in infrastructural development of the school and the need for the commencement of the second phase of work on the permanent site.

This would include provision of facilities such as administrative blocks, science laboratories, library and the need for computers and photocopiers to cope with examinations and secretarial work in the school.

NVRI PRIMARY SCHOOL

The School resumed the 2007/2008 session on the 17th September, 2007 and ended the session on 25th July, 2008. Activities carried out during the year were teaching, Open Days, termly examinations, assessment tests and preparing pupils for external examination into Colleges.

Internal examinations were conducted in all the classes and the results were given to the pupils.

External examinations taken by the pupils in Primary 5 and 6 are as shown in the following table.

Table 6: The number of students presented, admitted and percentages admitted into Secondary Schools.

S/N	Names of Secondary Schools	No of Candidates	No Admitted	% Admitted
1.	St. Joseph College, Vom	15	10	66.7
2.	Rochers Foundation, Jos	1	1	100
3.	C.M.I. Zawan	4	4	100
4.	Boys' Sec. School, Gindiri	6	4	66.7
5.	Air Force Comprehensive College, Jos	13	10	76.9
6.	St. Ritas High School, Vom	3	3	100
7.	NVRI Secondary School, Vom	39	37	94.9
8.	Baptist High School, Jos	4	1	25
9.	Nigerian Military School, Zaria	2	2	100
10.	St. Louis College, Jos	6	4	66.7
11.	St. Johns College, Jos	2	2	100
12.	Winners' International College, Jos	4	4	100
13.	Girls' High School, Gindiri	3	2	67
14.	St. Lukes' College, Jos	3	3	100
15.	ECWA Secondary School, Miango	3	2	67
16.	ECWA High School, Jos	2	2	100
17.	TCNN College, Bukuru	2	2	100
18.	St. Johns' Vianney Minor Seminary B/Ladi	2	2	100
19.	Govt. Secondary School, Katsina	1	1	100
20.	St. Benedict Covenant Pankshin	1	1	100
21.	Bethel College, Rayfield	1	1	100
22.	Christ Ambassador College, Kaduna	1	1	100
23.	Command High School, Rayfield	1	1	100
24.	Bethany High School, B/Ladi	1	1	100
25.	National Common Entrance	8	8	100

Average Percentage Passed = 89.2%

The School organized the 12th Annual Inter-House Athletics competition on 7th March, 2008. The occasion was well attended by invited guests, schools and parents/guidance.

The School also organized the Third Joint Annual Graduation, Speech and Price Giving Ceremony with several guests, parents, teachers, students and pupils, in attendance. Five students from Federal College of Education, Pankshin and College of Education, Gindiri were in the school for teaching practice.

Two staff, Mr. J. I. Ugbong and Mrs. Mariam H. Danung attended Seminar and National Conference respectively and presented papers during the year under review. Eleven (11) staff are on training in various higher institutions within the country for various certificates (NCE, B.Ed and M.Ed).

The Executive Director and Proprietor of the School visited the school for an on-the-spot assessment. Her visit brought in six television sets for the Nursery classes. There were sufficient seats water supply and the school has been connected to the Institute's generator for constant light. Three new staff were employed in the area of Fine Arts and General Subjects. Immunization against Filariasis and Cerebrospinal Meningitis was given to all pupils and staff in March, 2008.

The main challenge of the school was the need to replace a deceased teaching staff and two class assistants. Also there is a dire need for a Library and a Computer Laboratory.

OUTSTATION LABORATORIES

There are twenty three (23) Outstation Laboratories spread across the following geo-political zones in the country.

Table 7: The locations of the Outstation Laboratories under different zones.

S/No	Zones	Zonal Headquarter	Laboratories (Locations)
1.	North East	Yola	Yola, Jalingo and Maiduguri
2.	North West	B/Kebbi	B/Kebbi and Sokoto
3.	Kano	Kano	Kano, Katsina and Kaduna
4.	Central	Vom	Abuja, Bauchi, Keffi, Shendam and Makurdi
5.	South West	Akure	Akure, Ikire, Ibadan, Benin, Lagos and Ilorin
6.	South East	Calabar	Calabar, Umudike, Oji River and Uyo

Activities

The cardinal responsibilities of these laboratories are embedded in the mandate of the Institute viz:

- a) Surveillance and diagnosis of animal disease and;
- b) Providing extension services to poultry and livestock farmers.
Other functions include:
- c) Handling and distribution of NVRI-produced vaccines to farmers and other stakeholders,
- d) Collection of samples and specimens needed for confirmatory diagnosis and determination of prevalence or health status of animals through serological studies, isolation and identification of causative microbes and other agents.
- e) Other ad-hoc duties assigned by the Executive Director of the Institute or the Departmental Director from time to time,
- f) Handling and training of students especially those from Students' Industrial Work Experience Scheme (SIWES), Polytechnics and Universities on laboratory and field work. These include farm visits, disease surveillance, vaccination and observance of recommended vaccination schedules for poultry and livestock.

- g) Serving as avenues for disseminating internally-produced ethno-veterinary products used for various animal and human skin infections and fabricated kerosene incubators for hatching poultry eggs.

Disease surveillance, extension and veterinary services, were embarked upon by all the Outstation Laboratories through regular farm visits, collection of samples and specimens. Diagnosis was based mainly on history, clinical signs and post-mortem examination. Confirmatory diagnosis was also made through results of samples sent to NVRI, Vom. Diseases encountered include Newcastle disease, Fowl typhoid, Coccidiosis and Peste des petits ruminants (PPR) disease especially in goats, Gumboro Disease, Helminthosis and Blood parasitism and Contagious Bovine Pleuropneumonia (CBPP).

On-going Projects

The On-going projects in the Outstations are:

- a) Renovation of Ikire, Kano, Maiduguri and Sokoto Outstation Laboratories to enhance activities and performance.
- b) Collection of samples for Avian Flu and African Swine Fever to establish status or prevalence in the country
- c) Development of Quail Multiplication Centre in Ikire Laboratory. This is expected to extend to other zonal laboratories.
- d) Collection of samples for feacal and hemoparasites nationwide.

Vaccine distribution

The Outstation Laboratories, in 2008, remitted a total sum of fifty million, three hundred and three thousand, six hundred and eighty two naira (N50,303,682.00) only, representing cash generated as vaccine revenue. This indicates that the Outstations remain an effective, active and profitable outlet for vaccine handling and distribution to farmers and other stakeholders.

The activities of the Outstation laboratories are bound to improve when more laboratory facilities and infrastructures are put in place by the Management. The total staff strength is about 150 representing 17% of the Institute's workforce.

PARASITOLOGY DIVISION

The Division was created to conduct research and diagnosis of all economically important parasitic diseases of livestock and poultry and the development of treatment and control strategies.

The Division consists of the following units; Helminthology, Protozoology, Entomology, Ethno-veterinary and Immunodiagnostic units.

During the year under review the Division under went renovation and remodeling to meet up with the status of the Institute. The work is almost completed. State of the art facilities are being procured and put in place to position the Division to meet up with challenges in research and diagnosis.

DIAGNOSTIC ACTIVITIES

Blood Samples

A total of 232 blood samples were received for diagnosis from 152 cattle, 50 dogs, 10 sheep, 2 goats and 13 horses and 5 Wister rats. All samples were processed and results dispatched accordingly. The prominent parasites identified were *Babesia spp* (23%), *Trypanosoma spp* (4.5%), *Anaplasma marginale* (6%) and *Theileria mutans* (12%). This indicates that hemoparasites are still a major constraint to successful livestock production in the country.

Faecal Samples

Four hundred and twenty (420) faecal, samples were processed in the division and this consists of 171 from cattle, 29 from dogs, 15 from poultry, 16 from sheep, 1 from goat, 120 from swine, 1 from catfish and 67 from Wildlife.

Eighty one percent of cattle, 58.6% of dogs, 60% of chickens and 70% from sheep samples were positive for helminth eggs. About 42% of the samples from swine and 23% from wildlife samples were positive for parasites. Prominent helminths eggs identified were Strongyle, Fasciola, and Ascaris eggs.

Serum Samples

A total of 948 sera samples comprising of 384 sheep, 384 goats and 180 human samples were analyzed using direct ELISA for *Toxoplasma gondii*. 23.7% of the human samples were positive for *T. gondii* IgG antibodies. 6.7% of 372 ovine and 5.6% of 372 caprine samples were Positive for *Toxoplasma gondii* antibodies. This indicates that *T. gondii* is prevalent in the study area.

Similar study would be conducted in other parts of the country so as to determine the national prevalence of this organism and its implication on livestock production and public health.

Entomology Section

The Entomology section made an educational trip to Assop Falls. A total of 37 flies at their different stages of development were collected and 26 were identified to be *Simulium damnosum*, a well known intermediate host of River Blindness in humans. The diagnostic features of the larvae and the adults were observed using the Dissection Microscope. Establishment of tick colonies of major Ixodid ticks in Vom was attempted with limited success due to lack of some of the necessary facilities. With the recent supply of low temperature incubator and other facilities to the Division, the project has commenced with *Boophilus* ticks. They have laid eggs and some have started hatching which will pave way for the successful establishment of *Boophilus decoloratus* colony. The ticks will be used for the collaborative efficacy trial of Neem Azal as a therapy as well as for the tick vaccine research.

Other notable activities

1. One hundred (100) positive slides and preserved specimens of parasites were supplied to the Medical College, University of Abuja for teaching and practical demonstration of the parasites of medical and veterinary importance.
2. Through collaboration with North Carolina State University USA, the first diagnosis and molecular characterization of co-infection of *Babesia canis canis* and *B.canis rossi* in West Africa was made by the Division.
3. Cryopreservation of stabilates of pathogenic protozoans (*Babesia* and *Trypanosomes*) will serve as parasite bank for future research work as well as meet the need of other researchers and students.
4. A project involving an International collaborative research grant with Trifolio-M Company, Germany on the efficacy trial of Neem Azal for the treatment of common ectoparasites in Nigeria is on-going.

Challenges

The Division is aspiring to have a molecular laboratory and other related facilities for research activities.

Future Direction

The Division is planning to engage in molecular diagnosis and characterization of pathogenic parasites. There is also a need to embark on tissue culture work in order to propagate and preserve some of the important parasites for future use. The Division is also aiming at developing vaccine against some economically important parasites.

PLANNING, MONITORING AND EVALUATION

The Planning, Monitoring and Evaluation Department which is the **DATABANK** of the Institute was established in 2002 with the mandate to collect, collate, process and analyze various data required for the attainment of the Institute's Mandate. It formulates Capital Programmes/Projects, coordinates, monitors and evaluates all planned developmental programmes/projects in the Institute.

The Department consists of four Divisions. These are:

- 1) The Planning Division
- 2) Monitoring and Evaluation Division,
- 3) Library and Documentation Division and
- 4) Printing and Publications Division.

The Planning Division uses the results of the collated, processed and analyzed data for the formulation, co-ordination, monitoring & evaluation of the Institute's Projects and programmes.

Activities of the Planning Division

The Planning Division in conjunction with Statistics Unit updates staff documentation for use by National Pension Commission under the **Contributory Pension Scheme.**

The Division liaised with the library to establish a digital copy of the Institute's landed properties site plans. The hard and soft copies are now preserved in the Institute's DATABANK.

It also processed several data relating to Human Resource Development, Socio-Economic Activities of the Institute such as staff nominal roll, staff training and identity cards. These data were on many occasions sent to the National Economic Intelligence Commission, Federal Character Commission, Federal Office of Statistics, Agricultural Research Council of Nigeria and other Government Agencies as required. The Division in conjunction with the Protocol Unit assisted the Director (Planning) in receiving prominent dignitaries to the Institute.

With the attainment of international status (Regional Centre for Trans-Boundary Animal Diseases on Avian Influenza in Central and West Africa in December, 2007) the Institute in 2008 became a beehive of activities. It played host to all categories of visitors. There were 146 visitors to the Institute, consisting of those from tertiary institutions, secondary and primary schools. Others were visitors from Universities, Ministries and Government Agencies. Notable among such important visitors are the Senior Executive Course 30 participants, NIPSS, Kuru, Delegates from the Ministry of Education, Ethiopia, the National Commission for Nomadic Education, Kaduna, USAID Team from Washington D.C USA and Kebbi State Executive Council.

Others include the House Committee on Agriculture, International Consultative Forum on Highly Pathogenic Avian Influenza (HPAI) in Nigeria, International Conference on CBPP, Regional Workshop on Avian Influenza and the Catholic Bishops Conference of Nigeria. The Planning Division also worked out the computer requirements of the Institute for procurement and distribution.

In the year under review, the Division successfully organized the 3rd **Corporate Management Retreat** from 28th January to 1st February, 2008

It also continued to coordinate the Students on Industrial Work Experience Scheme (**SIWES**) in the Institute. These students cut across most of the famous tertiary Institutions in the country such as University of Jos, University of Ibadan, University of Nigeria Nsukka, and University of Maiduguri. One hundred and forty seven (147) students had their work experience in the Institute in the year under review.

During the reporting year, the **Procurement Unit** of the Division processed Contract documents and Local Purchase Orders for award and supplies. Also, an Enlightenment Programme on the National Health Insurance Scheme (NHIS) was held on 2nd and 3rd April. Within the period, staff updated records of their dependants, changed their health care providers while new staff registered with the scheme. The Division continued its work of maintaining and coordinating the Institute's Telecommunication system. More Intercom lines were extended to other Divisions that did not have before.

The Institute's **SERVICOM Unit**, facilitated the Construction of SERVICOM/Institute's Reception office and improved the attitude of staff towards work through awareness lectures, printing and distribution of 'SERVICOM work ethics', the NVRI SERVICOM CHARTER and reprinting of SERVICOM Registers.

The major activities of the **Cyber Café Unit** of the Division include: Internet browsing, printing, scanning, laminating and writing to CD (Computer Diskettes). The Café functioned optimally throughout the year as electric power supply was regular, thanks to the connection of the Institute's Generator to the Café. The unit also managed the Institute's internet connection with servers mounted at the Administrative Block and Diagnostic Division.

The Monitoring and Evaluation Division forms an invaluable aid to the Management in the overall control functions by providing the feedback on performance and implementation. To further build his capacity as he assumes the task, the Head of the Division attended a training workshop on "Agricultural Project Monitoring and Evaluation" at the Agricultural and Rural Management Training Institute (ARMTI), Ilorin. The Head of Division also presented a seminar on "The Log Frame for Monitoring and Evaluation System Design Objectives" during the year.

The Statistics Section received and analyzed several research data. The services were provided not only to staff of the Institute but also to staff and students of the two colleges. The Section continued the compilation of vaccine data for the year 2008. These include data collected for bacterial and viral vaccine production, sales and data storages.

The Division also continued to update staff documentations for use by National Pension Commission and liaised with Pension Fund Administrators on behalf of the Institute's staff.

A total of 175 units of Fire Extinguishers in the Institute were serviced and maintained through the effort of the Division.

POULTRY DIVISION

The Division carried out the following activities in the reporting year:

- 1) Production of chicks for vaccine testing and research;
- 2) Production of fertile eggs for the production of various poultry vaccines;
- 3) Investigation of diseases of poultry that could adversely affect productivity;
- 4) Introduction, adaptation and health management of exotic breeds of poultry and
- 5) Teaching of students from Federal College of Animal Health and Production Technology, other Colleges of Agriculture and Universities.

The stock balances of poultry as at the end of 2008 were:

- a) Six thousand, two hundred and seventy six (6,276) Vaccine Birds;
- b) Twenty one thousand, three hundred and ninety five (21,395) Quail Birds;
- c) One thousand, one hundred and five (1,105) Ducks;
- d) Two hundred and seven (207) Naked Neck;
- e) Ninety five (95) Turkeys;
- f) Three hundred and thirty nine (339) Guinea Fowls;
- g) Eight hundred and ninety nine (899) Black bantam;
- h) Twenty (20) Geese and
- i) One hundred and ninety five (195) Broilers.

The total value of these stock balances of birds as well as the eggs obtained from Research birds and vaccine eggs in the Incubator, and eggs on ground was twelve million, eight hundred and thirty thousand, five hundred and ten naira (N12,830,510.00) only.

The Division appreciated the Institute's Management for the renovation of the poultry houses, provision of security light and fencing of Vaccine Birds Section. The internal road of the Vaccine Birds Section was also renovated. The renovation of the boreholes is still on-going. The contract for the purchase and installation of new Vaccine Eggs Incubator was awarded and expected to arrive by the following year.

The table 8 shows the projected poultry production and targets achieved, the projected disposal of birds and targets achieved in the year under review. The projected total number of birds disposed was fifty three thousand, one hundred and fifty (53,150). Table 9 also shows the projected egg production and targets achieved. The projected number of eggs produced by the poultry birds was two million, four hundred and seventeen thousand, three hundred and twenty five (2,417,325). The target percentage achieved is presented on Table 9.

Table 8: The Projected Bird Production and Disposal for 2008 with targets achieved.

Specie	Closing Stock (2008)	Projected Production	Target (%) achieved	Projected Disposal	Target (%) achieved
Quail	21,395	50,000	80%	37,000	75%
Vaccine Birds	6276	3,000	60%		
Ducks	1105	1,600	120%	1,000	50%
Turkeys	95	400	50%	100	50%
Guinea Fowls	339	1,000	30%	250	100%
Black Bantam	899	1,200	120%	200	100%
Naked Neck	207	700	30%	-	-
Broilers	195	4,000	80%	3,400	90%
Ostriches	-	20	0%	-	-
Geese	20	20	100%	-	-
Day-old chicks	-	-	-	10,000	20%
Cock/Spent layers	-	-	-	1,200	50%
				53,150	

Table 9: The Projected Egg Production for 2008 and targets achieved

Specie	Projected Production	Target (%) achieved
Quails	1,944,000	70%
Vaccine Birds	432,100	100%
Ducks	14,805	70%
Turkeys	4,250	40%
Guinea Fowls	13,500	30%
Black Bantam	5,040	60%
Naked Neck	3,600	30%
Geese	50	20%
	2,417,325	

The total number of vaccine eggs issued by the Division to Virology Division and Medical Laboratory for research and vaccine production in 2008 was two hundred and fifty thousand, seven hundred (250,700). The details of these are presented in Table 10.

Table 10: The number of vaccine eggs issued to Virology and Medical Laboratory from January – December, 2008

Year 2008	NDV i/o	NDV-K	NDV-L	NDV I ₂	FPV	IBDV	ARV	RESEARCH	MED LAB	TOTAL
January	3884	2681	997	-	2986	-	-	600	-	11,148
February	2312	2576	2187	-	2679	-	1985	720	-	12,459
March	-	4127	1790	-	4683	-	991	539	-	12,130
April	50230	4593	2849	-	6145	2007	5480	480	-	71,784
May	5067	4729	2972	-	2977	1993	3965	1080	458	23,241
June	1692	3149	1693	-	1987	1894	4132	360	-	14,907
July	3880	1711	1885	-	4449	1492	4619	480	119	18,635
August	2209	2361	3270	-	2315	1998	2854	480	478	15,965
September	2965	3184	2881	-	4571	2182	4463	480	480	21,206
October	2772	1968	1729	-	3576	1494	2981	825	270	15,615
November	2679	2970	2934	-	4028	1420	3585	270	60	17,946
December	1788	2200	2976	-	2783	1996	3771	30	120	15,664
TOTAL	79,478	36,249	28,163	-	43,179	16,476	38,826	6,344	1,985	250,700

A book on Quail Production was published from the Division. Annual Conferences and Workshops were also attended by some Senior Staff of the Division.

The Division's proposed research projects for the coming year include:

- 1) Diseases of Quails diagnosed in Nigeria with reference to Vom;
- 2) Evaluation of eggs from different avian species for vaccine production;
- 3) Determination of the optimal stocking density of Quails in the Tropics;
- 4) A comparative study on the reproductive performance of white and brown coloured Japanese Quails.
- 5) Cost-benefit analysis of Quail Production.

PRINTING AND PUBLICATION DIVISION

The Division had the mandate of handling all the printing requirements of the Institute and generating revenue from jobs received outside the Institute.

During the reporting year, the Division printed 183,750 copies of various Vaccine Labels, 500 copies of CBPP posters, 406 booklets of Vaccine Sales Invoices, 325 booklet of Treasure Receipts, 74 booklets of Delivery Notes, 100 booklets on Quail Production and 500 copies of Vom Journal of Veterinary Science (volume 5).

Other printed products of the Institute in the year were:

- a) 1000 copies of Servicom Book Covers;
- b) 1000 copies of Servicom Texts;
- c) 303 copies of Official receipts;
- d) 600 copies of Annual Performance Evaluation Report Forms (APER);
- e) 1000 copies of Record of Service;
- f) 250 books on Wildlife Research Conservation;
- g) 100 copies each of NBTE Programme for FCAH&PT;
- h) Folders and Invitation cards;
- i) 500 copies of Consultancy Headed paper;
- j) 200 copies of Staff School Invitation Cards for the Inter-House Sport.

Other internal jobs handled by the Division included the printing of 20 reams of official Headed Paper, 4 boxes of official Envelopes, 300 copies of the Institute's 2007 Annual Report, 200 copies each of INFO MAGAZINE (Volumes: 4 & 5).

The estimated revenue from (internal) official jobs was valued at eight hundred and twenty nine thousand, eight hundred and seventy five naira (N829,875.00). The revenue generated from outside jobs amounted to three hundred and sixty seven thousand, three hundred and four naira (N367,304.00) only. Grand total of estimated revenue generated by the Division was one million, one hundred and ninety nine thousand, one hundred and seventy nine naira only (N1,199,179.00) in the year under review.

The Division was not able to generate revenue as anticipated because of the Kord 64 Offset Machine that broke down last year. The electrical motor of the machine needs to be replaced in order to bring the machine back to its working condition and thus enhance revenue generation.

The Division requires the services of a Computer Graphic Artist and an Offset Machine Operator to boost performance. The staff of the Division also need training especially in the areas of attending Conferences, Seminars or Workshops as related to publication and printing matters.

QUALITY CONTROL

This Division is charged with the responsibility and authority to ensure compliance with good management practice in the production of vaccine, veterinary biologicals and the overall standard laboratory procedures in the Institute's laboratories. Quality tests conducted on vaccines include all aspects of packaging, labeling, storage, sterility, viability, purity, safety, potency and freedom from contamination with extraneous agents. These tests on vaccines and general laboratory procedures were carried out with supplementary efforts of Bacterial, Viral, Diagnostic and Biochemistry Divisions. This collaboration is inevitable as the Division is yet to move to its newly constructed facility.

During the year under review, a total of 60 batches of viral and 110 batches of bacterial vaccines were tested out of which 107 of the bacterial and all the viral vaccines were certified adequate for field use based on past batch performance, content and freedom from extraneous agents.

There was only a single report on five (5) types of vaccines sent in by Shelleng Local Government Area of Adamawa State requesting for vaccine re-evaluation. This was a result of improper condition of storage of the vaccines prior to use. However, work is still on-going in the quality testing of the said vaccine samples.

Staff Training

Some Research Officers attended short training locally and internationally during the reporting year. The Head of Division also presented a training seminar on "Quality Management and Writing Standard Operating Procedures" for Heads of Sections/Units in the Institute. Two new staff, a Quality Assurance Officer and a Medical Laboratory Assistant joined the Division. Meanwhile, the Division, presently located at Brucellosis Research Section, is awaiting relocation to its newly built ultra-modern facility once the few final adjustments are concluded.

SECURITY

The unit is charged with the responsibility of providing protection of lives and properties of workers in the Institute. The entire Institute was placed on 24-hour vehicular/foot surveillance with a view to checking and tracking down hoodlums gangsters loitering in and around the Institute.

Activities of security concern (interest) were closely monitored. Students' activities on campus as well as their modus operandi passed through prime eyes of security. Nocturnal activities of hoodlums were also carefully managed.

The unit also provided escort services. This included escort of vaccines from the Institute to the Airport for dispatch to various Outstations as well as escort duties to staff during the curfew periods imposed on the State following the sectarian/religious crisis that engulfed some parts of the State in November, 2008.

Effective and efficient physical surveillance on Government installations such as Giant generators, Offices, laboratories, Stores, Workshops, Staff Quarters, Boreholes/Water Treatment Plants, Schools and Colleges, Club House, Paddocks, Gates and indeed the entire Institute was provided in the year under review.

The unit was able to check the excesses of students in area of cultism, armed/unarmed robbery attacks and other serious violent crimes. Timely investigation and prosecution of offenders were secretly adhered to. Activities of hawkers and commercial motorcyclists were also put in check.

The unit also during the year under review liaised with other Security Agencies in the discharge of its statutory responsibilities. These liaison activities helped tremendously in policing and providing adequate security to the staff and employers and enhancing enforcement of rules and regulations from the Institute's Management.

STORES DIVISION

The Stores Division, in the year under review, ensured that there was an uninterrupted flow of working materials to the Production, Research and Services Divisions of the Institute. The Division also organized in-house training through regular lectures. The Division operated under several units.

In 2008, the Vaccine Dispatch Unit received a total of 61,567,709 doses of viral vaccines and 30,290,540 doses of bacterial vaccines. From these, 87,680,581 doses were issued out. Towards the end of the year, a sales unit was created and the dispatch function was moved to the unit to facilitate accountability and revenue generating activities from these products.

The Receipt and Dispatch Unit of the Division received and processed documents for posting/payments during the period under review. This development saw the opening of transaction file for suppliers and effort is being made to compile a supplier's profile in the Division.

Despite inadequate manpower, the Ledger Unit has continued to manage and cope with the responsibilities of posting of receipts and issues.

The Inventory Unit retrieved various kinds of furniture and equipment from staff quarters and offices/laboratories to the Stores and some of the items are awaiting disposal by the Board of Survey. The stock indexing exercise is now undergoing review and update in preparation for the Stores' automation.

The Main Stores (Section) carried out the following tasks during 2008; documentation and reconciliation of procured items, material Receipt/Issue and Posting, handling, and stocking of research and production items.

The Division requires the renovation of the Store House so as to increase storage capacity. Inadequate man-power and the absence of a software package are issues expected to be handled by the Management.

VIRAL RESEARCH DIVISION

The Division consists of specialized laboratory research teams on specific diseases that are economically significant in Nigeria.

The Division carried out investigation and diagnosis from a total of 435 poultry samples received across the country in 2008. The Laboratory was able to obtain two Highly Pathogenic Avian Influenza (HP/AI) isolates, twenty two (22) Newcastle Disease isolates and diagnosed 23 positive cases of Infectious Bursal Disease. The Division collaborated with Food and Agricultural Organization (FAO) in the collection and analysis of tracheal, cloacal and serum samples for a collaborative work on “Epidemiology of Avian Influenza in Africa” (EPIAAF) which involved other seven African countries. In Nigeria, assessment of serum samples collected from Plateau, Kano and Kaduna States was carried out and the sera so far examined were negative for (Highly Pathogenic Avian Influenza) HPAI. The remaining samples would be tested in the following year.

Similarly, the Division collaborated with FAO/FLD in carrying out targeted surveillance in 11 States not previously infected by HPAI. The States are; Abia, Imo, Ebonyi, Bayelsa, Cross River, Akwa Ibom, Kogi, Osun, Ondo, Kebbi and Gombe States.

Also, a total of 1888 tracheal swabs, 1896 cloacal swabs, 1839 sera and 184 carcasses were investigated. The results of this surveillance have been dispatched to FAO/FLD (Food & Agricultural Organization/ Federal Livestock Department).

Foot and Mouth Disease (FMD) and African Swine Fever (ASF) Research Activities

The Division successfully established collaboration with the following organizations namely;

- 1) Institute for Animal Health (IAH), Pirbright, U.K and the World Reference Laboratory for Foot-and-Mouth Disease (FMD).
- 2) Institute Nacional de Investigacion Y. Tecnologia Agraria Y. Alimentaria (CISA-INIA), Madrid, Spain and the European Union Reference Laboratory for African Swine Fever (ASF).

On October 16th and 17th an Assessment Team from OIE visited the Division to assess the suitability of the Laboratory for possible upgrading. The result is still being waited.

Detection and identification of Peste des petits ruminants (PPR) disease agent

The presence of PPR virus, the causative agent of Peste des Petits Ruminants, the most important of all small ruminant diseases in the country was detected from 29 out of 40 goat tissues examined and all the eight (8) sheep tissues examined. The detection of precipitin antibodies in 10 of the 79 goat sera and 4 of 11 sheep sera is indicative of recent infection of the sheep and goats. This is a great presage that PPR has assumed epizootic proportions in Nigeria. The Institute is already producing vaccine for the control of the disease.

Training

Five of the Officers in the Division completed their Master's Degree Programmes and one also completed his Ph.D Programme.

The Division, on behalf of the Institute, collaborated with FAO/CIRAD in the collection and analysis of samples for Avian Influenza (AI). Two members of the Division participated in a USAID-organized workshop of "AI commodity, handling and shipment of Infectious Materials" in Jos, Nigeria between 14th – 16th April, 2008. Another two Officers attended the training organized by the FAO/USAID on "Molecular Diagnosis of Avian Influenza and Biosafety Measures" between 18th and 22nd May, 2008 at the US Naval Medical Research Unit (NAMRU-3) Cairo, Egypt. Two Research Officers in the Division participated in the training of "Avian Influenza Advanced Laboratory Diagnostic Techniques" organized by NVRI/FAO/USAID between 13th and 17th October, 2008 at NVRI, Vom, Jos.

Two officers attended a training programme on "Trends in ASF Diagnostic Techniques" between July 14th and 18th, 2008. The training which was sponsored by ILRI/INIA was held at Quality Control Building of the NVRI, Vom. Finally, two officers participated in the "Training on Remote Sensing and Geographical Information System Technologies" held on 22nd to 26th September, 2008 in the Quality Control Building, NVRI, Vom, Nigeria.

VIRAL VACCINES PRODUCTION DIVISION

The animal viral vaccines produced in 2008 were Newcastle disease vaccine (NDV intraocular (i/o), NDV-L (Lasota), NDV-K (Kamarov), Infectious Bursal Disease Vaccine (IBDV), Fowl Pox Vaccine (FPV), Antirabies Vaccines for Dogs (ARV'D) and Peste des Petits Ruminants Vaccine (PPRV).

A total of three hundred and ninety two thousand four hundred and ten (392,410) vials which gave a sum of sixty two million, three hundred and thirty six thousand, six hundred and twenty three (62,336,623) doses of various viral vaccines were produced. Three hundred and ninety thousand and forty eight (390,048) vials representing a total of six million, nine hundred and forty three thousand two hundred and sixty two (61,943,262) doses of vaccines were issued for distribution and revenue generation throughout the country. The details are shown in Table 4. In 2007, a total of 65,174,351 doses of vaccines were issued out and this is slightly higher than 2008 figures (61,943,252 doses)

Table 11: Animal Viral Vaccines produced and issued in 2008 on monthly basis

MONTH	VACCINE	NO. PRODUCED	DOSES	VIALS ISSUED	DOSES
January	PPRV	14,539	726,950	14,462	723,100
	NDV-L	4,445	889,000	4,411	882,200
	IBDV	8,215	1,643,000	8,144	1,628,800
	ARVD'	4,655	4,655	4,621	4,621
	NDV-K	4,847	969,400	4,809	961,800
	TOTAL	36,701	4,233,005	36,447	4,200,521
February	FPV	9,639	1,927,800	9,570	1,914,000
	NDV-L	7,523	1,504,600	7,451	1,490,200
	NDV-i/o	3,030	606,000	2,995	599,000
	PPRV	3,781	189,050	3,746	187,300
	NDV-K	3,676	735,200	3,642	728,400
	TOTAL	27,649	4,962,650	27,404	4,918,900
March	NDV-L	3,600	720,000	3,566	713,200
	FPV	6,085	1,217,000	6,053	1,210,600
	PPRV	7,626	381,300	7,590	379,500
	NDV-K	4,216	843,200	4,182	836,400
	TOTAL	21,527	3,161,500	21,391	3,139,700
APRIL	ARV'D'	9,153	9,153	9,120	9,120
	IBDV	16,367	3,273,400	16,297	3,259,400
	PPRV	4,159	207,950	4,130	206,500
	NDV-L	6,492	1,298,400	6,456	1,291,200
	NDV-K	3,905	781,000	3,874	774,800
	TOTAL	40,076	5,569,903	39,877	5,541,020

MAY	IBDV	10,887	2,177,400	10,857	2,171,400
	ARV'D'	6,341	6,341	6,311	6,311
	NDV-I2	7,322@50doses/ vial	366,100	7,322@50doses/ vial	364,600
	NDV-L	7,707	1,541,400	7,647	1,529,400
	NDV-i/o	3,065	613,000	3,035	607,000
	FPV	9,996	1,999,200	9,966	1,993,200
	TOTAL	45,318	6,703,441	45,108	6,671,911
JUNE	NDV-K	8,137	1,627,400	8,066	1,613,200
	NDV-L	4,000	800,000	3,966	793,200
	NDV-K500 doses	2,145	1,072,500	2,110	1,055,000
	IBDV	19,681	3,936,200	19,611	3,922,200
	TOTAL	33,963	7,436,100	33,753	7,383,600
JULY	NDV-L	6,336	1,268,000	6,265	1,253,000
	IBDV	10,765	2,153,000	10,730	2,146,000
	NDV-K	2,616	654,000	2,580	5,645,000
	ARV'D'	6,312	6,312	6,268	6,268
	TOTAL	26,029	4,081,312	25,843	4,050,268
AUGUST	NDV-L	5,156	1,031,200	5,121	1,024,200
	TOTAL	5,16	1,031,200	5,121	1,024,200
SEPTEMBER	ARV'D'	6,537	6,537	6,497	6,497
	IBDV	20,559	4,111,800	20,488	4,007,600
	FPV	4,829	965,800	4,795	959,000
	TOTAL	31,925	5,084,137	31,780	5,063,097
OCTOBER	NDV-K	3,403	680,600	3,373	674,600
	ARV	15,575	15,575	15,495	15,495
	FPV	8,140	1,628,000	8,066	1,613,200
	NDV-L	12,461	2,492,200	12,353	2,470,600
	TOTAL	39,579	4,816,375	39,287	4,773,895
NOVEMBER	NDV-K	11,451	2,290,200	11,367	2,273,400
	NDV-L	10,578	2,103,600	10,471	2,094,200
	TOTAL	31,924	6,384,800	31,771	6,354,200
DECEMBER	NDV-L	12,415	2,483,000	12,339	2,467,800
	NDV-K	12,044	2,408,800	11,972	2,394,400
	PPR	10,936	546,800	10,879	543,950
	IBDV	9,692	1,938,400	9,654	1,930,800
	NDV-I/o	4,401	880,200	4,373	874,600
	FPV	3,075	615,000	3,049	609,800
	TOTAL	52,563	8,872,200	52,266	8,821,950
	GRAND TOTAL	392,410	62,336,623	390,048	61,943,262

WORKSHOP DIVISION

The Workshop Division is charged with the responsibility of carrying out routine maintenance and repairs of the existing structures and machineries. It also carries out new constructions and installations where necessary in the Institute.

The Division is composed of several Units. These are: Plumbing, Carpentry, Masonry, Painting, Welding, Plant Maintenance, Drivers, Environmental Maintenance, Electrical and Mechanical Units. Their activities cover all parts of the Institute and even extend to the Outstation Laboratories.

In the year under review the Division renovated six Senior Staff Quarters in the Institute. The Carpentry and Electrical units rehabilitated the Shendam Outstation laboratory and carried out the construction of metal doors and windows for the NVRI's Staff Secondary School Classes and Offices in Vom.

Similarly, the Carpenters, Welders and Painters carried out the renovation of 300 Seats and Desks for the Staff School. In the same vein, new Plumbing fittings were provided to the Chalets in the Institute's Guest House, while the Welding and Masonry Section completed the fencing of the Large Animal Experimental Section.

The Environmental Maintenance Unit carried out the landscaping of the Staff School, Central Diagnostic laboratory, Convenience Plaza and the new site of the Extension Division. The Unit also established a vibrant Nursery which provided all the seedlings for the Tree-planting campaign that took place in the year under review.

As a result of materials provided by the Management, the Division carried out many other minor jobs in the Institute and the Staff Quarters. Inadequate office accommodation and manpower are some of the challenges being handled by the Management.

JOURNAL PUBLICATIONS BY STAFF

Zwandor N.J., Akalusi Y., Ngulukun S.S., Meseko CA., Akanbi B.O., Adedeji J.A., Fagbamila I.O. (2008). **Outbreak of severe cutaneous bovine papillomatosis in a cattle herd** *Vom Journal of Veterinary Science* Vol. 5 No 1 pp 67-72.

Yanan G.E; Usman B.U; Etuvi, M.A; Tanko T.J; Shuwarbis S; Sugun M.Y; Dalis J.S; Bertu W (2008); **Lice infestation in commercial layers under deep litter system on the Jos Plateau: Case study reports.** *Journal of Research in Agriculture, Vol. 5 Number 4.pp72-75.*

Williams R. A. J., Fasina, F. O. and Peterson A. T. (2008). **Predictable Ecology and Geography of Avian Influenza (H5N1) Transmission in Nigeria and West Africa.** *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 102: 471-479. doi:10.1016/j.trstmh.2008.01.016.

Nicolas Gaidet., Giovanni Cattoli., Saliha Hammoumi, Scott H. Newman, Ward Hagemeijer, John Y.Takekawa, Julien Cappelle, Tim Dodman, Tony Joannis, Patricia Gil, Isabella Monne, Alice Fusaro,Ilaria Capua, Shiiwuua Manu, Pierfrancesco Micheloni, Ulf Ottosson, John H. Mshelbwala, Juan Lubroth, Joseph Domenech, Francois Monicat (2008) **Evidence of Infection by H5N2 Highly Pathogenic Avian Influenza Viruses in Healthy Wild Waterfowl.** *PLoS Pathogens* www.plospathogens.org 8 August 2008 Vol. 4 Issue 8 e1000127.

Monne I., T. M. Joannis, C. Terregino, I. Capua, G. Cattoli. H.G.,Ularamu, Solomon Ponman. A.N. Egbuji, (2008) **Reassortant avian influenza viruses of the H5N1 subtype are predominant in Nigerian poultry in 2007.** *Emerging Infectious Diseases*. 14, (4) 637-640.

Meseko C.A., Adeyinka J.A., Fagbamila I.O. **What is your Diagnosis?** *Nigerian Veterinary Journal* 2008 Vol 29 (3):58.

Masdoog A.A., Salihu A.E., Muazu .A., Habu A.K., Ngebe,J., Haruna ,G., Sugun, M.Y (2008). **Pathogenic bacteria associated with respiratory disease in poultry with reference to *Pasteurella multocida*.** *International journal of Poultry science* 7(7):674-675.

Kamani J; Turaki, A., U., Egwu, G. O., Mani, A. U, Saidu, M. K., Abdullahi, J. G and Kumshe, H. A (2008). **Haemoparasites of camels (*Camelus dromedarius*)** in Maiduguri, Nigeria: *Animal Research International* 5(2): 838 – 839.

Kamani J., Meseko C.A., Tanko T.J., Tafarki A.E., Lazarus D.D., Peter J.G., and Oladokun A.T. **Tetrameres fissipina infection in local chickens in Taraba State Nigeria-case report.** *International Journal of Poultry Science* 2008 7(12): 1216-1218.

Junaid, S.A., Peter, J.G., Okwori, A.E.J., Echeonwu, G.O.N and Olabode A.O (2008): **Isolation of *Yersinia enterocolitica* from animals at slaughter point in Jos Abattoir, Nigeria.** Nigeria Veterinary Journal Vol. 26 (2):52-55.

Joannis, T M.; Meseko, C A; Oladokun, A T; Ularamu, H G; Egbuji, A N; Solomon, P; Nyam, D C; Gado, D A ; Luka, P ; Ogedengbe, M E; Yakubu, M B; Tyem, A D ; Akinyede, O; Shittu, A I ; Sulaiman, L K ; Owolodun, O A; Olawuyi, A K; Obishakin, E T and Fasina F O (2008) **Serologic and virologic surveillance of avian influenza in Nigeria, 2006-7.** *EUROSURVEILLANCE* Vol. 13 Issue 42 16 October 2008 www.eurosurveillance.org

Irokanulo, E.O., Haruna G., Spencer T.H.I., Ngbede J., Akalusi Y., Sugum M.Y., Salisu E.A., Masdooq A.A., Ehizibolo D.O., Shedua L., Muazu A., Hashimu G (2008). Fifteen year (1992-2006) retrospective study on annual bacterial vaccine production at NVRI Vom, Nigeria. *Vom Journal of Veterinary Science* 5(1) pp.12-17.

Ighodalo, E.T, Tanko J., Gyang M.D., Nanbol, L.D., Zal A (2008): **Mange in guinea pigs (*Cavia porcellus*): The Scabicur advantage.** *Vom Journal of Veterinary Science* Vol. 5 No 1.p73-75.

Ighodalo ,E.T., Abdullahi, S.J., Nanbol, L.D., Chukwu,D., Dashe Y.G (2008): **Probable Pullorum disease-induced intussusception in chickens-A case report.** *Vom Journal of Veterinary Science*, Vol. 5 No.1 pp 65-66.

Ibu O. J., Salihu S. A. E., Luther N. J., Suraj K., Ceaser A., Abechi A. S., Aba-Adulugba E. P., Shamaki D (2008). **Evaluation of Peste des Petits Ruminants and Rinderpest virus infections of camels in Borno and Kano States of Nigeria.** *Nigerian Veterinary Journal* 29(3), 76 – 77.

Ibu O. J., Okoye J. O. A., Eze D., Fasina F.O., Aba-Adulugba E. P., Abechi A. S., Woma T. Y (2008). **Antigenic relatedness among Newcastle disease virus isolates from Nigerian feral birds and the Lasota strain.** *Archives of Veterinary Science* 13(2), 78 – 82.

Ibironke, A.A., McCrindle, C.M.E, Fasina, F.O and Godfroid, J. (2008). **Evaluation of Problems and Possible Solutions linked to the surveillance and control of Bovine Brucellosis in sub-Saharan Africa, with Special Emphasis on Nigeria.** *Veterinaria Italiana*, 44(3): 549-556.

Garba, A., Oboegbulem, S.I., Lombin, L.H., Makinde A.A., Ogunsan, A.E., Meseko C.A., Danbirini, S., et al (2008). **A 15 year (1991-2005) retrospective study on rabies diagnosis in NVRI, Vom, Nigeria.** *Vom Journal of Veterinary Science* Vol. 5 No 1 pp 54-58.

Garba A. Oboegbulam, S.I., Elsa A.T., Junaidu A.U., Magaji A.A., Umoh J.U., Yahaya K., Danbirni S., Habu A.K., Masdoq A.A (2008). **A comparative rabies laboratory diagnosis peculiar features of samples from apparently healthy dogs in Nigeria.** *Sokoto Journal of Veterinary Science*; 29(1) 33-36.

Fasina, F. O., Sirdar, M. M. and Bisschop, S.P.R. (2008). **The financial cost implications of the highly pathogenic notifiable Avian Influenza in Nigeria.** (2008). *Onderstepoort Journal of Veterinary Research*, 75: 39-46.

Fasina, F. O., Potgieter, C., Ibronke, A. A., Bako, B. D., Bwala, D. G. and Kumbish, P. R. (2008). **First report of outbreak of African Horse Sickness virus serotype 2 in the northern hemisphere.** *Journal of Equine Veterinary Science*, 28: 167-170.

Fasina, F. O., Nyam, D. C., Nwosuh, C. I., Makinde, A. A. and Rivas, A. L. (2008). **Centripetal spatial spread of the highly pathogenic Avian Influenza H5N1** in selected States of Nigeria. *Vom Journal of Veterinary Science*, 5(1):18-27.

Fasina, F. O., Kaplan, B., Kahn, L. H., and Monath, T. P. (2008). **Improving vaccine coverage in Africa.** *Lancet*, 371: 386.

Fasina, F. O., Bisschop, S.P.R., Joannis, T. M., Lombin, L. H. and Abolnik, C. (2008). **Molecular characterization and epidemiology of the highly pathogenic avian influenza H5N1 in Nigeria.** *Epidemiology and Infection* doi:10.1017/S0950268808000988. July 2008, 17:1-8 (E. pub).

Ehizibolo D.O., Ogunsan S., Mohammed, M.J., Nwosuh C.I., Meseko C.A. **Diagnosis of canine rabies by Direct Fluorescent Antibody Technique in Plateau State, Nigeria** *Nigerian Veterinary Journal* 2008 Vol. 29(2):20-24.

Echeonwu G.O.N., Iroegbu C.U., Echeonwu B.C., Ngene A., Nwosu C.I., Joannis T.M., Ndako J (2008). **Immune response and protection of free range chickens vaccinated orally with feeding of Newcastle disease vaccine-coated cassava granules.** *African Journal of Microbiology Research* 2 (5)120-125.

Echeonwu, B.C., Ngele, M.B., Echeonwu, G.O.N., Joannis, T.M., Onovoh, E.M. and Paul, G. (2008). **Response of chickens to oral vaccination with Newcastle disease virus vaccine strain 12 coated on maize offal.** *African Journal of Biotechnology*, Vol.7 (10), Pp 1594-1599.

BOOK

Musa, U., Haruna, E.S., and Lombin, L.H. (2008) **Quail Production in the Tropics.** 1st Ed. *NVRI Press, Vom.* Pp1-158.

**THE MONTHLY NVRI CLINICAL CONFERENCE OF VETERINARY DOCTORS
(2007/2008) IN VOM**

Abechi, A., Kujul, N., Goni, D., Taama, L., Masdooq, A., Lazarus, D. and Ularam, G:
Rabies in 5 week-old puppies in Vom, Plateau State (28/9/07).

Oyetunde I. R., Shaibu, S.J., Jwander, L., Bwala, D., Tanko, J., Ikpa, L. and Egbuji A:
Flea bite dermatitis in a herd of dairy calves (2/11/07)

Ibu, J., Danjuma, D., Kumbish, P., Manasa, S., Ogo, I., Suleiman, I. and Rapu, V:
Tetanus in a local dog in Jos: A case report (30/11/07)

Cole, T., Egwu, K., Oladipo, O., Luka, P., Gusi, M., Waziri, N.E. and Idachaba, S:
Suspected case of leptospirosis in a 4 exotic dogs exposed to lindane
(16/01/08)

Muhammed, M., Banyigi, S., Luther, N., Tafarki, E., Ighodalo, E., Ehizibolo, D., Asala, O. and Benshak, J. A:
Tetrameres infection in a local chicken flock in Takum LGA of Taraba State (15/2/08)

Zwandor, N., Akalusi, Y., Ngulukun, S., Meseko, C. A., Adeyinka, S., Akanbi, B. Fagbamila, I. and Abdullahi, S:
Cutaneous bovine papillomatosis in a cattle herd (29/2/08)

Gisilanbe, M., Dashe, Y., Habu, A, Bala, A., Ogunwale, C., Egbaidomeh, S. and Joanis, T:
A case of Newcastle disease in pigeons in Jigawa State, Nigeria (25/4/08)

Ogunsan, E., Emenna, P., Mantip, S., Adamu, K., Bertu, W., Gyang, M., Sini, T. and Okpara, J:
The possible effect of *Mormodica balsamina* in the management of Newcastle disease (30/5/08)

Bot, C., Muraina, I. A., Oladokun, T., Sati, N. M., Bakari, A., Suleiman, L., Ogo, M. and Nwosuh, C:
Appendicular osteosarcoma in a 6 year-old bull mastiff bitch (27/6/08)

Adulugba, A., Usman, M., Dalis, J., Bello, M., Olorunsola, I. D., Elisha, L., Antiabong, J. and Weka, R:
An outbreak of Infectious Bursal Disease (IBD) in a vaccinated flock of 5-week-old pullets in Abuja, Nigeria (1/8/08)

Muhammad, L., Ogbe, A., Barde, I., Ponmon, S., Jambalang, A., Owolodun, O., Adefalujo, O., Woma, T. and Dawurung, C:
Occurrence of Marek's disease in point-of-lay Harco birds (29/8/08)

Nwankpa, N. D., Durbi, I. A., Fasina, F., Kamani, J., Bolajoko, M., Ekong, P. I., Leo, S. and Ankeli, P:
Surgical correction of abdominal hernia in an ewe (17/10/08)

NVRI Seminar Presentations by Staff and Others in 2008

S/No	TOPIC	PRESENTER	DATE	DIVISION
1.	Molecular and Spatio-Temporal Analyses of the Spread of Avian Influenza H5N1 in Nigeria	Dr. F. O. Fasina	14th Feb. 08	Viral Research
2.	Evaluation of Ethanolic Extract of <i>D. Glomerata</i> & <i>P. Guajava</i> leaves for antidiarrhoeal activity	Dr. Jude O. Okpala	8th May, 08	FCAH&PT
3.	In vitro screening for antibacterial toxicity of selected plant extracts from Northern Nigeria	Dr. Muraina Issa	22nd May, 08	Bact. Research
4.	Diagnosis of Typhoid Fever in Nigeria	Prof. D. Agbonlahor Dr. M. O. Obadofin Prof. E. I. Ikeh Prof. Sam Abbey Dr. Y. M. Tاتفeng	12th June,08	
5.	African Horse Sickness serotype 2 extends to the Northern hemisphere	Dr. F. O. Fasina	19th June, 08	Viral Research
6.	Retirement & Planning for Retirement	Mr. J. N. Zinkat	4th Aug. 08	Admin.
7.	Parasitic Vaccines	Dr. Jude Uzonna	7th Aug. 08	
8.	Therapeutic effects of Tamarind on Toxicity of <i>Erythrophleum suaveolens</i> aqueous leaves extracts in Rabbit	Toxicology Training Programme Interns	13th Aug. 08	NEF-NVRI
9.	Influence of age on Sub chronic Toxicity of <i>Calotropis procera</i> aqueous leaves extract in Rabbits	Toxicology Training Programme Interns	13th Aug. 08	NEF-NVRI
10.	Multiplex PCR using SCAR Markers, for the Identification of <i>Eimeria</i> species in Chickens	Mrs. M. E. Ogedengbe	11th Sept. 08	Bioch. & AMB
11.	Direct Rapid Immunohistochemistry Test (DRIT): An Alternative Tool for Rabies Diagnosis in Nigeria	Dr. Ahmed Garba	9th Oct. 08	Outstation, Yola
12.	USAID Programme on Control of AI in Nigeria	Dr. K. H. O. Olabode	30th Oct. 08	Outstation, Ilorin
13.	Biochemistry of Ageing	Dr. H. P. Onyeama	6th Nov. 08	Outstation, Calabar
14.	Chemistry and Biochemistry of Snake Venoms	Dr. H. P. Onyeama	6th Nov. 08	Outstation, Calabar
15.	Long-Term Planning for Financial Freedom	AIMS ASSET MGT LTD	11th Nov. 08	
16.	Profiting from the Capital Market	CASHCRAFT ASSET MGT LTD	11th Nov. 08	

17.	National Housing Scheme	Federal Mortgage Bank & Aso Savings and Loans LTD	13 th Nov. 08	
18.	Training and Staff Development	Mal. M. N. Ambursa	20 th Nov. 08	FCAH&PT
19.	Servicom	Mrs. E. P. Wapmuk	20 th Nov. 08	FCVMLT
20.	Utilization of Differently Processed Pigeon Pea Based Diet by Broilers	Mr. A. G. Yisa	28 th Nov. 08	FCAH&PT

LIST OF STAFF APPROVED FOR TRAINING IN 2008

S/No	Name	Rank	Degree in View	Institution
1.	Dr. Akanbi B. Olatunde	VRO I	Ph.D.	University of Ibadan in Collaboration with the Fed. Res. Inst., (Germany)
2.	Dr. Dogo Goni	PVRO	Ph.D.	ABU., Zaria
3.	Dr. Ogo, N. Isaac	VRO	Ph.D.	ABU., Zaria
4.	Mr. Ahmed B. Suleiman	Res. Officer I	Ph.D.	ABU., Zaria
5.	Dr. Sugun Manasa	VRO	Ph.D.	ABU., Zaria
6.	Mr. Obinna Mwankiti	VRO	Ph.D.	University of Jos
7.	Dr. J. N. Zwandor	CVRO	FCVSN	ABU., Zaria
8.	Dr. Luka Pam Dachung	VRO I	M.Sc.	Makarere University, Uganda
9.	Mr. Nanbol L. Daniel	Med. Lab. Scientist II	M.Sc.	University of Jos
10.	Dr. Solomon Ponman	VRO I	M.Sc.	University of Pretoria, South Africa
11.	Dr. Elisha I. Leo	VRO II	M.Sc.	University of Pretoria, South Africa
12.	Mr. Dogonyaro B. Banenat	Res. Officer II	M.Sc.	University of Pretoria, South Africa
13.	Dr. Ogunwale Christiana	VRO I	M.Sc.	
14.	Dr Stella E. Idachaba	VRO I	M.Sc.	University of Pretoria, South Africa
15.	Dr. Jambalang A. R.	VRO II	M.Sc.	University of Pretoria, South Africa
16.	Dr. Sati N. Milton	VRO	M.Sc.	ABU., Zaria
17.	Dr. Ahmed James	PVRO	M.Sc.	ABU., Zaria
18.	Mr. Bot Y. David	Snr. Med. Lab. Scientist	M.Sc.	University of Hull, UK
19.	Mrs. Chukwu I. Doris	Med. Lab. Scientist II	M.Sc.	University of Jos
20.	Mr. Sitshiwe G. Golit	Snr. Foreman	HND	Plateau State Polytechnic
21.	Mr. Gyang J. Victor	AEO	HND	Plateau State Polytechnic
22.	Mr. Abdullahi S. Usman	ATO	HND	FCAH&PT., Vom
23.	Mrs. Jilong P. Bilhatu	Conf. Secretary IV	ND	Plateau State Polytechnic
24.	Mr. Ab'dulsalam Mohammed	Library Assistant	ND	Fed. Polytechnic, Offa, Kwara State
25.	Dr. S. A. Egbaidomeh	CVRO	Ph.D.	University of Ibadan
26.	Dr. A. I. Faramade	VRO	M.Sc.	University of Ibadan
27.	Dr. M. M. Kasim	VRO	M.Sc.	University of Benin

LIST OF DECEASED STAFF IN 2008

S/No	Name	Rank	CONTISS	Date of Death
1.	Dr. Luther Joram N.	Assistant Chief Veterinary Research Officer	13	20/10/2008
2.	Dr. Yahaya Kabiru	Veterinary Research Officer	9	
3.	Mr. Rotimi Adeleye	Printing Assistant	3	17/7/2008
4.	Mr. Amali Adamu	Motor Driver	2	1/11/2008
5.	Mr. Simon Lagba	Pump Operator	1	30/6/2008
6.	Mr. Dayah Dalyop Gyang	Livestock Attendant	1	6/5/2008

LIST OF RETIREES UNDER THE NEW PENSION SCHEME IN 2008

S/No	Name	Rank	Date Retired	No. of Years Served
1.	Mr. Mangtit Joseph	Senior Security Guard	26/12/2008	Retirement age
2.	Mr. Mwanti Rapp	Security Guard	16/04/2008	Retirement age
3.	Mr. Gyang P. D.	Prin. Med. Lab. Technician	30/10/2008	35

UNIVERSITY DONS ON SABBATICAL LEAVE IN THE INSTITUTE (2008)

S/No	Name	Address	Research Interest
1.	Prof. S. O. Akpavie	University of Ibadan	Diagnostic Histopathology
2.	Dr. S. G. Bawa	ABU., Zaria	Poultry Nutrition (Micronutrients)
3.	Dr. H. M. Kazeem	ABU., Zaria	Virology
4.	Prof. O.O.A Fasanya	FUT., Minna	Epidemiology (Remote Sensing & Spatial Distribution of Disease)
5.	Prof. R.I.S. Agbede	ABU., Zaria	Parasitology

ACKNOWLEDGEMENT

The Annual Reports for the year 2007 and 2008 were edited, arranged and produced by the Institute's Publications Committee. We sincerely appreciate the Institute's Management for giving us the privilege of serving and contributing in this way to the progress and activities of the Institute. To God be the glory. We are:

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Dr. N. I. Ogo	-	"
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