

Forward	2
Scientific Reports	3
Departmental Reports	7
Parasitology Department	7
Biochemistry and Applied Molecular Biology	8
Bacterial Research Department.....	10
Viral Vaccine Research Department.....	12
Poultry Viral Vaccine Production Department	15
Large Animal Viral Vaccine Production Department	15
Bacterial Vaccine Production Department.....	15
Veterinary Extension & Research Liaison Services	16
Diagnostic Department	17
Dagwom Farm	18
Poultry Department	19
Livestock Investigation Department	22
Stores	23
Accounts & Finance Department	24
Administration Department	24
Planning Department.....	25
NVRI Staff Schools.....	26
Staff Reports	28

Publications..... 29

Forward

The Institute made modest achievements in 2002. This was as a result of motivation of staff by Management to improve productivity through capacity building.

The Staff on ground now are more disciplined, more focussed and therefore more productive hence increase in output in all areas of activities in the Institute.

NVRI continues to make its mark in the provision of vaccines for the control of livestock diseases. In 2002, there was an increase in total vaccine output from 44,141,366 doses in 2001 to 55,333,575, an increase of 25.36%. The increased capacity and the provision of improved facilities and supply of materials for research activities led to an increase in the number of research projects embarked upon by researchers.

Rehabilitation of existing research and production facilities were carried out in the Virology and Bacteriology Laboratories. Staff Houses, Laboratory (small animals) Animal and Poultry Houses were also rehabilitated. The Institute now wears a new look through efforts by Management to beautify the environment in order to make it more conducive for academic and research activities.

The culture of publication has been re-awakened leading to the release of a number of

publications which include: 18 Extension Guides; Vaccine Guides; and NVRI Seminar Series 2001 B 2002. The Institute looks forward to strengthening research for the improvement of existing vaccines and the development of new vaccines for the control of livestock diseases.

Dr. (Mrs) L. H. Lombin,

Director and Chief Executive.

SCIENTIFIC REPORTS

Modulation of immune response in poultry

Research on the possible use of *Zizyphus spina-cristi* leaf extract in the modulation of immune response to vaccination in poultry started in 2002. The first phase of the project (extraction and purification of the target component) has been completed. The second phase has been projected for the first quarter of 2003.

Adaption and development of SOP for DNA & RNA Isolation.

Four methods were tried (Troyer et al 1990; Sambrook et al, 1989) and based on these, SOP for DNA and RNA extraction and purification has been drafted. Promega SV total RNA Isolation Kit was used as the Standard RNA Isolation method for comparison. DNA and RNA Isolation and

purification reagents were prepared and standardized.

PCR Detection and Characterization of Pathogens

Newcastle Disease Virus (NDV)

Thirty-eight NDV samples received from Viral Research Department were assayed. NDV was detected in thirty (30) samples. Positive samples were further characterized into virulent (13 samples) and avirulent types (seventeen samples).

Pasteurella multocida Detection

Ten *Pasteurella multocida* cell culture samples (from chickens, quails and swine) were received from Bacterial Research Department for PCR detection of *Pasteurella multocida*.

Pasteurella multocida was detected in four (4)

samples confirming the serological and biochemical typing by the Bacterial Research Department.

DNA Extraction

Four isolates of *D. congolensis* were treated for the isolation of total genomic DNA. Two samples were positive.

African Swine Fever (ASF)

The work on ASF focussed mainly on serological diagnosis of serum samples using indirect-ELISA (I-ELISA) Immunofluorescent test and molecular diagnosis (PCR) on tissue samples received from suspected outbreaks and investigation of

Twenty-six samples from ASF outbreaks from different parts of the country received through the Viral Research Department and were assayed using PCR. Twenty samples were positive for ASF Virus. Six samples from a pig that survived for a year after an ASF epidemic were taken.

suspected out breaks in different farms.

Four outbreaks that occurred at the Federal Capital Territory (FCT), NVRI, Obasanjo Farms (OBJ farms) and Langtang North L.G.A were investigated. Two separate batches of sera were received from National Animal Production Research Institute (NAPRI), Shika. All sera samples were examined by the indirect enzyme-linked immunosorbent assay (I-ELISA). Antigen detection was by the fluorescent antibody test (FAT).

Tissue samples from this pig were stored in 10% formalin.

Infectious Bursal Disease Virus Detection

Thirty-nine(39) bursal samples from IBD outbreaks stored from 1984 were analysed.

Two were shown to be positive. This may not be unconnected with the unstable nature of RNA as the samples were stored for long periods before analysis or this may be due the RNA isolation method used. This calls for reassessment of the SOP and quality assurance steps for IBDV PCR detection. It is now established that PCR can be used for the diagnosis of ND, IBD, ASF and the detection of *Pasteurella multocida* in the

Molecular Biology Section

Newcastle Disease (ND) Research

Moderate success was achieved in the isolation and characterization of ND virus from reported outbreaks. Quality Control of ND vaccines, production of NDV challenge virus, NDV antigen and control negative and control positive sera were also under taken. Others are the monitoring of yolk antibody levels of eggs used for vaccine production and virus isolation from Domestic Fowls and Virus Characterization.

A total of 22 avian carcasses, 12 cloaca and five tracheal swabs were collected from NDV outbreaks reported in Jos, Vom, Heipang, Bauchi, and Akwanga in an attempt to isolate the causative agent. A total number of seven (7) isolates, one (1) from cloaca swab, and six (6) from infected avian tissues were obtained in the process. The isolates were characterized by the following techniques: PCR, Mean Death Time (MDT) in embryonated eggs and Intravenous Pathogenicity Index (IVPI) in 6-week-old birds. The results indicated that all the isolates were velogenic with varying degrees of virulence. Intra-Cerebral Pathogenicity Index (ICPI) will be conducted on the isolates shortly.

Virus Isolation from NDV Infected feral Birds.

Brain, lung, spleen, tracheal tissues and rectal swabs were collected from sixty-four (64) free

flying birds. Rectal swabs alone were collected from another thirty-three (33) free-flying birds. The birds were caught from various locations, including: Vom at the vicinity of the Poultry Farm of the National Veterinary Research Institute, Jos Wild Life Park, Jos Zoological Garden and two Local Government areas of Benue State (Markudi and Guma).

The birds belonged to more than twenty-five (25) different species. A total of twenty isolates of ND were obtained from several species of the birds. Fifteen (15) of the isolates were from rectal swabs, two (2) from brain, and one (1)

An isolate of NDV-L was multiplied in chicken embryonated eggs and stabilized in glycerol standardized as antigen for use as working preparation in haemagglutination and haemagglutination inhibition tests in the laboratory. Positive and negative control sera were produced and quantitated. The antigen and

each from lung, spleen and trachea. Three of the isolates were within the velogenic strain range by PCR. Intravenous pathogenicity index (ICPI) placed two isolates on the Lentogenic strain range and one on the Mesogenic. The Mean Death Time (MDT), showed two (2) of the isolates to be velogenic, two (2) Mesogenic and four (4) Lentogenic. So far eight (8) isolates have been partly characterized and twelve (12) isolates await characterization. Further characterization continues.

control sera are available for sale to interested laboratories to aid diagnosis.

Haemoparasitic Diseases Project

Bovine babesiosis is emerging as a threat to the livestock industry in Nigeria, since the major epizootics like Rinderpest and CBPP are being controlled. This project is aimed at

assessing the current status of bovine babesiosis

in Nigeria including vectorial distribution and

identification. Samples were collected from Jos and Maiduguri abattoirs and NVRI Vom cattle.

Samples routinely brought to the laboratory were

also analysed for haemoparasites. Out of 566

blood samples analysed from bovine the following

results were observed. *Anasplasma marginale*

144[20.5%] cases were positive while *B.*

bigemina showed 84[10.2%] positive cases.

Babesia bovis was found in four[1.2%] cases.

7[2.2%] were positive for *T. vivax* while

two[0.6%] were positive for *T. congolense*.

Some micro filariae were also observed in buffy coats of blood samples.

The epidemiology of ectoparasites of cattle in

relation to these diseases is also being

investigated. Eight samples were collected from

Dogs and five[62.5%] were positive for *Babesia*

species.

Cryptosporidiosis Project

The Cryptosporidiosis project is being pursued

and various animal species have been found to

be positive for the parasite. Quails and rabbits

appear to have shown the highest prevalence

of all the animals sampled so far. Out of the

127 rabbits 47[37.0%] were positive. Out of

the 102 samples obtained from Quails

24[23.3%] were positive for oocysts. In

Geese 2[7.14%] were positive out of the 28

samples examined. In Chickens 8[4.17%]

were positive while four[8.33%] out of 48

samples were positive in Guinea Fowls.

Various methods of diagnosis are currently being evaluated.

Mycoplasma Research

CBPP is considered to be the most

economically important cattle disease in Africa,

causing greater losses in cattle than any other

disease including rinderpest (OIE, 1995). In

1998, under the Technical Cooperation Project

2002: Annual Report

(TCP), the FAO/IAEA introduced the competitive enzyme linked immunosorbent assay (c-ELISA) for the measurement of CBPP antibodies in a bid to improve the diagnostic abilities of the National Veterinary Research Institute, Vom. The project is currently on going. In 2002, a total of 456 serum samples were screened for CBPP antibodies. Out of these, 320 were screened using the c-ELISA while 40 were screened using complement fixation test (CFT). The c-ELISA

test detected three positive samples while none of those tested by the CFT was positive for CBPP antibodies.

Tissue samples were also routinely processed for mycoplasma isolation in this laboratory.

Thirty-two bovine lung samples and three avian samples of spleen, heart and ovaries were cultured for mycoplasma isolation. Four of the bovine samples were positive for mycoplasma growth while the avian samples were negative.

DEPARTMENTAL REPORTS

PARASITOLOGY DEPARTMENT

The Department was created to carry out Research and Diagnosis of all economically important parasitic diseases of livestock and poultry and to develop control strategies.

Achievements were recorded mainly in the area of parasite epidemiology and the use of locally available materials for the control of parasites.

The Department consists of Helminthology, Protozoology/Haemoparasitic diseases, Ethno pharmaceutical, Entomology and Immunodiagnosis.

Control of Coccidiosis

A total of 500 samples have been collected so far from various animal species. Out of these, 127 samples were from Rabbits, 117 from Quails, 229 samples from Chickens and 29 samples from Geese. Out of the 127 samples

collected from Rabbits 17[13.39%] were positive for coccidia oocysts while 46[65.71%] of the 70 grower chickens sampled were positive for oocysts. Neither the Quails nor Geese were found positive for oocysts. Out of the 52 layer birds sampled eight[15.38%] were positive for oocysts while two[4.65%] out of 43 naked neck breed were positive for oocysts. Out of the 44 samples collected from the Yaffa breed 17[38.64%] samples were positive for oocysts and 15[75%] were positive from 20 samples collected from the Black Bantam breed. It was observed that hygiene; medication regime and age are significant in the prevalence of Coccidiosis in poultry.

Younger birds tend to shed more oocysts and most of the carcasses examined were those of the young poults [growers] and they were kept on deep litter. Most of the birds kept in cages did not shed oocysts or did so very minimally. The lack of oocysts in the faecal samples

obtained from quails may be attributed to the hardiness of these birds. Previous studies have shown no isolation of *Eimeria* oocysts from Quails even though they are known to harbour about five species.

The oocysts identified from chickens include *E. tenella*, *E. acervulina* and the relatively mild *E. mitis*. Those from rabbits include *E. intestinalis* and *E. perforans*. The future thrust of the project is to develop methods of coccidia isolation that would yield pure cultures for

Work on the development of Scabicur lotion has been going on for some years now. A range of products are now being developed and tested on ectoparasites of animals and skin infections of humans. Soaps and the dry powdered forms of the drug have now been added to the initial lotion. The lotion, soap and powder have shown a lot of potential in eliminating most skin conditions in man and animals especially scabies. Field trials have been carried out in Lafia, Nasarawa State and at the National

vaccine development and reference materials.

The Chorio-Allantoic-Membrane of the Chicken egg is being explored for the possible production of large numbers of pure cultures of oocysts for this purpose. Plants that have anticoccidial properties are being identified and their properties documented for possible therapeutic trials against common coccidia of domestic animals.

Development and Trial of Scabicur range of products

Children=s Park and Zoo in Abuja where its pesticidal property was demonstrated. The Veterinary Investigation Officers of some states have also reported on the efficacy of the drug. Clinical trials of these formulations on animals like goats, sheep, pigs and dogs with skin infections have been carried out with promising results. The effectiveness of the formulation under experimental conditions is being studied using small animals like rabbits. Its direct effect on ectoparasites like ticks and flies

especially its direct knockdown effect using different concentrations of the active ingredients is being studied also. The biochemical profile of the drug is being studied and plans have reached an advanced stage for the evaluation of properties like its toxicity through collaboration with the National Institute of Pharmaceutical Research and Development Abuja.

Routine Diagnosis of Parasites found in Faecal and Blood Samples

During 2002, 1,382 faecal samples and 79 blood samples from different animal species were examined for parasites. Skin scrapings were also examined for ectoparasites.

BIOCHEMISTRY AND APPLIED

MOLECULAR BIOLOGY

The Biochemistry and Applied Molecular Biology Department are a research and service Department. All Sections except the Molecular Biology Section are involved in research,

routine chemical analysis and training of students.

Primary functions include:

Nutrition Section

Research into animal nutrition in relation to animal diseases, Chemical analysis of feeds, feedstuffs, foods and foodstuffs, Training of Students on Industrial Training and Consultancy services on feeds and feedstuffs to farmers and feed-millers.

Clinical Biochemistry Section

Research into the chemical pathology of diseased animals and biochemical diagnosis, chemical water analysis and biochemical diagnostic tests.

Toxicology Section

Research into mycotoxins, phytotoxins and environmental toxicants and also Research into herbs of medicinal value. Routine analyses of

2002: Annual Report

toxin levels in feeds, foodstuffs and water,
mineral element analyses and routine alkalinity
tests

Molecular Biology Section

Research into the application of molecular
biology techniques in the diagnosis of animal

diseases, genotyping and characterization of
animal disease pathogens, cloning and genetic
engineering in relation to animals and animal
diseases.

	Animal Species	No. of samples	No. Positive	Percentage positive	Parasites identified
1	Bovine	718	111	15.5	<i>Oesophagostomum</i> spp
2	Ovine	137	8	5.83	<i>Ostertagia</i> spp
			2	1.46	<i>Oesophagostomum</i> spp
			28	20.44	<i>Haemonchus</i> spp
			30	21.89	Coccidia oocysts
			9	6.57	<i>Moniezia benedeni</i>
3	Caprine	104	11	10.58	<i>Haemonchus</i> spp
			24	23.08	<i>Bunostomum</i> spp

2002 Annual Report

4	Poultry Chickens	268	124	46.27	Oocysts of coccidia
			7	2.61	<i>Ascaridia galli</i>
			11	4.10	<i>Capillaria columbae</i>
5	Canine	12	2	16.67	<i>Demodex canis</i>

Table 1: Occurrence of parasites in various animals

S/NO	ANALYSIS	NO. OF SAMPLES	VALUE (₦)
1	Liver Function Test	16	5000
2	Serum Cholesterol	1	150
3	Bilirubin	1	150
4	Total Protein	1	250
5	Fasting Blood Sugar		3640
6	Urea Assay	1	150
7	Urinalysis	24	2350
8	Occult Blood	11	1070
9	Stool Microscopy	11	1100
10	Uric Acid assay	2	450
11	Malaria Parasites	1	50
	Total	69	14335

TABLE 2: Summary of routine chemical analysis

BACTERIAL RESEARCH DEPARTMENT

The Bacterial Research Department (BRD) comprises five (5) research laboratories where research activities into various animal diseases of bacterial origin are conducted.

Brucella Research

This section of the Bacterial Research Department participated in the External Quality Assurance Programme (EQAP) of the International Atomic Energy Agency (IAEA) on Indirect and Competitive ELISA tests for brucellosis diagnosis. The objective of this project is to improve the diagnostic capacity of the laboratory. An ELISA kit supplied by the IAEA was validated using known positive and negative sera. The kit was used to test 270 field sera from cattle drawn from Borno, Yobe, Sokoto, Plateau and Kogi States. Out of these, 80 tested positive for brucellosis.

As part of the Institutes approved projects on Epidemio-surveillance of Brucellosis in Nigeria, 12 vaginal swabs, 14 milk samples, 3 hygroma fluids and 2 aborted fetuses obtained from cattle and sheep in Plateau, Taraba, Nassarawa and Bauchi states were examined. Four (4) isolates of *Brucella abortus* were obtained. As part of routine diagnostic activity in the Department, 350 sera samples from cattle tested, 67 were positive for Brucella antibodies by both Rose Bengal Plate Test (RBPT) and Serum Agglutination Test (SAT). Out of 14 milk samples screened for Brucella antibodies by the Milk Ring Test (MRT) 4 tested positive. Forty (40) human sera samples were also screened for Brucella antibodies by both RBPT and SAT and 5 of them tested positive.

Haemophilus & Listeria Research

This section is responsible for carrying out research on the surveillance of Infectious Coryza in Poultry and *Listeriosis* of Ruminants in Nigeria. It is also mandated to carry out routine culture and isolation of pathogenic bacteria.

processed in this section for bacterial culture and isolation. The bovine samples comprising of liver, lungs, spleen, kidney and bile screened, 8 were positive for *Listeria monocytogenes*, 2 for *Streptococcus pneumoniae*, 3 for *Escherichia coli* and 2 for *Peptostreptococcus*. From the 3 ovine lung



Research activities in this section were hampered due to lack of reagents especially for *Haemophilus* studies. However, 34 bovine, 3 ovine, six avian and one porcine samples were

samples processed, 2 were positive for *Clostridium perfringenes* while *Klebsiella* species was isolated from the third sample. *Salmonella gallinarum* was isolated from 2 of the avian samples and *Escherichia coli* from the

remaining 4 samples. The only porcine sample received during the period was positive for *Listeria monocytogenes*.

Pasteurellosis Research

This section is responsible for conducting research on the surveillance of Pasteurella Infections of Livestock and Poultry. 10 bovine, 2

Out of the 2 ovine samples cultured for *Pasteurella*, one was positive for *Pasteurella haemolytica*. From the avian cases, 25 quail samples were subjected to bacteriological examination following an outbreak of disease in the Institutes quail stock. *Pasteurella multocida* was isolated from tissues of 20 birds examined. Fifteen (15) chicken samples were also examined for *Pasteurella* organisms. Only one was positive for *P. multocida* and 10 for *E. coli*.

Serotyping of Pasteurella multocida Vaccine Strain

ovine and 40 avian samples were processed.

The bovine samples comprising liver, lung and spleen. These were cultured for Pasteurella organisms. No *Pasteurella* species were isolated but *Actinobacillus* species and *Escherichia coli* were isolated from one and two samples respectively.

Heddleston somatic serotyping of the *P.*

multocida types B and E vaccine strains revealed they were 3, 4 and 2 respectively.

Dermatophilosis Research

This section is made up of two laboratories. One handles isolation of *Dermatophilus* and mycotic organisms and other bacteria while the other laboratory is involved with research in immunology. The approved project, is the pathogenesis of Dermatophilosis and the role of fungi and other bacteria found in skin lesions of *Dermatophilus congolensis* - infected animals. 66 bovine skin samples were cultured for the isolation of *D. congolensis* and fungi. Out of

2002 Annual Report

these, 48 of the specimens were found positive for *D. congolensis* while the following fungi were also isolated from the samples, *Trichophyton verrucosum*, *T. tonsurans*, *T. violaceum*, *T. mentagrophytes*, *Aspergillus*

fumigatus, and *Geotrichum* species. Eight canine skin samples were all negative for *D. congolensis* but fungi isolated include, *T. mentagrophytes*, *T. schoenlumi*, *Blastomyces dermatitidis*, *A. fumigatus* and *A. flavus*.

VIRAL VACCINE RESEARCH

DEPARTMENT

In 2002 the department acquired a number of well refurbished experimental animal houses for chickens.

Research Activities include

- § Field investigation of outbreaks of African Swine Fever (ASF), Foot and Mouth Disease (FMD), Newcastle Disease (ND), and Infectious Bursal Disease (IBD).
- § Isolation and characterization of the viruses of ND and IBD
- § Seroepidemiology of ASF, Rinderpest, ND and IBD; and molecular diagnosis of ASF.
- § Development of Egg Drop Syndrome (EDS) vaccine
- § Production of NDV challenge virus and NDV antigen

Yolk Antibody Monitoring

Eggs were collected from the research and vaccine production birds kept in the Poultry Department and quantitated for NDV antibodies. The result obtained, GMT 2.895, showed that the antibody levels in eggs were insignificant to interfere with NDV vaccine production and research.

Production of NDV Challenge Virus, NDV Antigen and Control Sera.

A local Viscerotropic Velogenic Newcastle Disease Virus (VVNDV) was propagated and titrated (Log $10^{8.3}$ per ml) in chicken embryonated eggs, lyophilized in ampoules.

Research into Egg Drop Syndrome

Four major research works were carried out on EDS, Seroprevalence studies, Post vaccination Seromonitoring, Vaccine development and Growth curve studies.

in Akwanga, Nasarawa State. The results are as tabulated (Table 3)

Seroprevalence Studies

A total of one thousand six hundred and ninety (1690) serum samples were collected from unvaccinated layers and screened for EDS antibodies. From NVRI poultry farm a total of two hundred and fifty-eight (258) sera were collected; Twenty (20) samples were collected from bantam birds, 50 from ducks, 120 from guinea fowls and 68 from old layers. In addition, a total of forty (40) samples were collected from two other farms in Vom. 268 samples were collected from ten (10) farms in Bauchi Local Government Area of Bauchi State. A total of 1198 samples was also collected from local chickens in Bauchi State, comprising 250 from Misau, 250 from Alkaleri, 250 from Tafawa Balewa, 250 from Dass LGA and 198 from Ganjuwa LGAs. From Maiduguri in Borno State, a total of 93 samples was collected from three farms, 76 samples from two farms in Yola, Adamawa State and 64 samples from one farm

2002 Annual Report

Breed of Bird	Source of Samples	No. of Samples screened	No. Positive	Percentage Positivity	Number of farms
Bantam Birds	NVRI Farm, Vom	20	0	0	
Ducks	NVRI Farm, Vom	50	4	8	
Guinea Fowl	NVRI Farm, Vom	120	1	0.8	
Old layer	NVRI Farm, Vom	68	0	0	
Layers	Jos	70	6	8.5	
Layer	Poultry Farms, Vom	40	0	0	
Layers	Bauchi LGA	268	7	2.6	
Layers	Maiduguri	93	2	2.2	3
Layers	Yola	76	0	0	2
Layers	Akwanga	64	0	0	1
Local Chickens	Misau LGA, Bauchi	250	9	3.6	

2002 Annual Report

Local	Alkaleri LGA,	250	32	12.8
Chickens	Bauchi State			
Local	Tafawa/Balewa	250	15	6
Chickens	LGA, Bauchi			
Local	Dass LGA,	250	6	2.4
Chickens	Bauchi			
Local	Ganjuwa LGA,	198	5	2.5
Chickens	Bauchi			

Table 3: Seroprevalence Studies

Seromonitoring for Immunity to EDS EDS were on a weekly basis, followed up to monitor antibody levels for vaccination information on the pattern of protective antibody synthesis and decay. Both farms were vaccinated at 16 weeks of age.

A total of five hundred and one (501) serum samples were collected from vaccinated laying flocks. Two farms in Vom immunized with a killed polyvalent oil emulsion vaccine against ND, Infectious Bronchitis (IB) and

Weeks	Farm A (GMT)	Farm B (GMT)
1.	0	0
2.	4.6	
3.	26.0	24.3
4.	104.0	26.0
5.	137.0	19.7
6.		10.6
7.	128.0	
9.	104.0	
11.		8.6
14.	13.0	
20.		21.1

Table 4 Other farms had GMT ranging between 2.0 and 388.0.

EDS Growth Curve Studies

Duck eggs collected over a period of three months and used for a growth curve study to

determine the dilution, volume of inoculum, and incubation period EDS virus will give the highest HA titre and yield. The neat virus inoculated into

10-day-old embryonated duck eggs via the allantoic cavity at 0.1 ml per egg and incubated for 96 hours at 37°C gave the highest HA titre of 2^{15} or \log_2 15 and yield.

EDS Vaccine Development

A total of six hundred and twenty-two (622) duck eggs was collected for vaccine development and growth curve study. In all, 2.977 litres of EDS antigens were produced. About 2.4 litres of the antigen in glycerol, with a HA titre of 2^9 was heat inactivated. 577ml of the antigen without glycerol with a HA titre of 2^{15} is stored at B20°C for vaccine production. Inactivation and blending with the adjuvant are to commence in 2003.

Results obtained are as tabulated below

Rinderpest and PPR

Only one field outbreak of FMD involving several herds of cattle in Yola, Adamawa State was investigated. Samples of eroded tongue epithelium and sera were collected for viral

As in previous years, the Department was involved in a collaborative project with Pan African Rinderpest Campaign (PARC) and Pan African Programme for Control of Epizootics (PACE) by seromonitoring for rinderpest antibodies in our national herds. Through the project, a new I-ELISA kit has been developed and standardized. One hundred (100) serum samples obtained from 3 different herds were received from the Aso Rock veterinary clinic for antibody screening. Eight percent (8%) of the total number of samples was positive for rinderpest antibody.

Foot and Mouth Disease (FMD)

isolation and serological test respectively. A 20% weight/volume (w/v) suspension of the epithelial tissues was made in PBS and stored pending the arrival of BHK cells for viral

isolation. The sera were similarly stored at - 20°C pending the arrival of ELISA kit.

Infectious Bursal Disease (Gomboro)

Work was begun on defining the current Infectious Bursal Disease virus (IBDV) pathotypes prevalent in Nigeria. Nine (9) isolates were obtained from a survey of local pathotypes of IBDV responsible for the current field outbreaks.

Capripox

Standard Operating Procedures (SOP) as recommended by the Office International des Epizooties (OIE), were prepared for the immunodiffusion test, a serological technique for assessing immunity to Lumpy Skin Disease, Sheep Pox and Goat Pox.

POULTRY VIRAL VACCINE

PRODUCTION DEPARTMENT

This Department is charged with the responsibility of producing high quality poultry vaccines which include: NDV i/o, NDV LaSota, NDVK and NDV4. Others include IBDV, and Fowl pox vaccines. The following doses of vaccines were produced. The low figures are as result of renovation work carried out in the Department.

LARGE ANIMAL VIRAL VACCINE

PRODUCTION DEPARTMENT

The main activities of the Department include, production of PPR vaccines for ruminants, production of anti rabies vaccines for dogs, production of FMD vaccines for cattle, the preparation of various media and solutions for all viral vaccines and the freeze-drying of viral and bacterial vaccines

The following media were produced

PBS	140Litres
H/MEM	205L

Stabiliser 185L
 T/HBSS 20L
 Gelatin 19L
 ACD 500ml
 AB/Conc 500ml

bacterial diseases. The Department currently produces the following vaccines: Anthrax Spore Vaccine (ASV), Black Quarter Vaccine (BQV), Brucella Vaccine, Contagious Bovine Pleuro pneumonia (CBPP), Fowl Cholera Vaccine (FCV), Fowl Typhoid Vaccine (FTV), Haemorrhagic Septicaemia Vaccine (HSV), and Hantavac.

BACTERIAL VACCINE PRODUCTION DEPARTMENT

The Department is involved with the production of Bacterial vaccines for the immunization of livestock against economically important

Batch	ASV	BQV	CBPP	FCV	FTV	HSV (standard)	HSV (Obudu)	HANTAVAC
1	384400	702000	320000	42200	182300	5720	8560	7560
2	382400	312500	374100	49000	211200	2720	9320	10080
3	355200	211000	443.9	70000	379400	12640	15160	15520
4	384800	Nil	814400	55200	386300	13960	45000	16.4
5	415600		668900	79600	279600	Nil	13680	14360
6	Nil	Nil	232200	149600	279600	Nil	13680	11840
7			456400	70800				12680

2002 Annual Report

8			217770	132200				
9			323300	89800				
10			255700	Nil				
11			318500	94800				
12			332100	87800				
13			455800					
	B5/01	B15/01				B8/01		
	176,600	180,400				6,320		
14			440000					
TOTAL	1922400	1402000	5833600	922000	1823300	71040	1144120	88440

Table 5: Total Number and types of vaccines produced in 2002

**VETERINARY EXTENSION &
RESEARCH LIAISON SERVICES**

All extension activities are carried out by Veterinary Extension and Research Liaison Service (VERLS) Department. There are five (5) components of Extension viz:-OFAR, MTRM, Surveys, Training Workshops & Meetings and Publications.

OFAR (On-farm-Adaptive-Research Trials)

No OFAR trials were conducted in 2002.

Monthly Technology Review Meetings

Achievements

No Technology Review Meeting was attended during the year. As a result of the lack of participation of the Institute in any of the Zonal OFAR Workshop meetings, the Department was

not able to obtain information on the health constraints of the different zones.

Surveys

No surveys were conducted in 2002.

Training Workshops and Meetings

A training workshop on poultry production for women was conducted under the Women-In-

Meetings

The Institute attended two Middle Belt Zonal Meetings

Publications

Twelve radio programmes on different aspects of livestock health, management, production

DIAGNOSTIC DEPARTMENT

The primary functions of the Department are Laboratory diagnosis of livestock & poultry diseases, field investigation of livestock diseases of zoonotic importance. Consultancy and Extension Services are also conducted by the Department

Agriculture Programme. The workshop had attendance from eight ADPs out of the ten ADPs invited. In attendance also were two Non-Governmental-Organisations managed by the= wives of the Governors of Benue and Plateau States.

and responses to questions received from livestock farmers were produced and aired.

Microbiology

This Unit processed 258 specimens during 2002. Out of these 187 were avian, 45 bovine 11 ovine, 1 canine, 1 equine, 3 porcine and 8 lapine. E coli was isolated from 17 samples, Salmonella from 58 and Staphylococcus from

65. Others were Klebsiella species (33), Pseudomonas (7), and Citrobacter (32).

Virus Diagnostic Unit

Only Rabies cases were processed in this Unit. 186 canine heads were received out of which 102 were positive for rabies.

Autopsy Unit

A total of 1027 cases of livestock and poultry were received from Bauchi, Taraba, Adamawa, Kaduna, Kano, Gombe and Plateau States. Out of these 792 were avian cases of which 266 were quails, 4 were ostriches, 5 geese, 32 ducks, 4 guinea fowls and 1 owl, 391 chickens. The following conditions were diagnosed Newcastle disease (100) Gomboro (42), Marek's disease (53), Avian Leukosis (14), Salmonellosis (190), Coccidiosis (66) Colibacillosis (173), Pasteurellosis (165), Helminthosis (10) Infectious Laryngotracheaetis(1) Aspergillosis (1), untreated cases (100).

Bovine Specimens

A total of 122 bovine specimens was processed. Of these 160 were made up of liver, lungs, blood, faeces etc. From these samples the following conditions were diagnosed: CBPP (28), Haemoparasitism(38), LSD (19), Pneumonitis (15) Cowdriosis (6), Coccidiosis (7), Haemorrhagic Septicaemia (4), Helminthosis (48), Black quarter (1), Mastitis (2), Dermatophilosis (15) Haemorrhagic Enteritis (1), Fascioliasis (3).

Porcine Specimens

Six pig carcasses were received for Necropsy. All six were diagnosed with African Swine Fever with concurrent Ascariasis.

Ovine Specimens

55 Ovine samples were processed and confirmed to have died of Heart water (18), pneumonitis (10), Helminthosis (20) and Haemoparasitism (7).

Caprine

Fifteen caprine samples were received. Five (5) were diagnosed with Helminthosis, 1 with snake bite, 2 with pneumonitis and six with Haemoparasitism.

Zoo Animals

Six zoo animal specimens were received either for necropsy. One case was suspected Tuberculosis while 3 were confirmed Streptococcal and Klebsiella pneumonia and one case of Salmonella.

Canine Samples

Two canine samples were received. One was diagnosed with cerebral babesiosis and the other with unconfirmed Anthrax.

Laboratory Specimens

Nineteen lapine samples were handled and were diagnosed with pneumonia, mange, Coccidiosis, and salmonellosis.

Wildlife Specimens

Two Grass Cutter (*Thryonomy swinderianus*) cases were received. One was diagnosed with pneumonia and the other with sepsis due to an infected wound. One female eland was diagnosed with unconfirmed Tuberculosis. One Hyena carcass which died of pneumonia was also received.

DAGWOM FARM

The farm is made up of four sections: Feed Mill, Fabrication, Rabbitry and Agronomy. The department is responsible for the production of feed for all classes of livestock and poultry in the Institute, and fabrication of kerosene powered Incubators, multiplication of rabbits and maintenance of a seed bank for all genera of grasses, legumes and ethno pharmaceutical plants.

Feed Mill

The farm has the capacity of an average daily production of 24 tons of feed, and 15 tons of

extruded soya-cake and a weekly production capacity of 300 litres of refined soya-oil and 7.5 tons of pelleted rabbit feed.

Fabrication

This section is responsible for the production of kerosene Incubators. Presently, three models of Incubators, i.e. the 150 egg capacity, the 300-egg capacity and the 500-egg capacity are produced and available for sale to the general public. The Department also offers after - sales service to customers anywhere in the country. The section has well-experienced personnel who can undertake the fabrication of various agricultural machinery spare parts if the foundry can be completed and basic workshop tools are

This section carries out research, production and multiplication of many genera of grasses,

~~ethno pharmaceutical plants, pastures and~~

legumes on seed-bank and in paddocks

recently. For the first time since the creation of the Agronomy Unit more than ten (10) years ago its activities have now moved from seed-banking to proper paddocks for preparation of

provided. The fabrication section is fully commercialized and is operating on profit

Rabbitry

The rabbitry was set up with the primary objective of multiplication of rabbits for sale to the general public, farmers, schools, colleges, universities, governmental and non-governmental organizations all over the country. This is in order to boost livestock production to assist in the country's food security programme and to provide the much needed animal protein needs of the people. Four Hundred and seven rabbits were sold in 2002.

Agronomy

pasture grasses and forage introduction on fields.

Revenue Generation

The revenues generated in the farm are in two forms; Cash and Transfer Vouchers.

Through these channels the farm has generated a total sum of N2,275,679.00 in cash, while the sum of N22,384,650.00 was realized through transfer vouchers to various

Departments of the Institute. This brings to a total the sum of N24,664,329.00 realized during the period

POULTRY DEPARTMENT

Main Activities

- \$ To produce fertile eggs for the production of various Poultry Vaccines.
- \$ To produce chicks for Vaccine testing and Research purposes.
- \$ Investigate diseases of Poultry that may hamper productivity
- \$ Investigate nutritional and management aspects of all classes of Poultry and their effects on disease management.
- \$ Introduction, adaptation and disease management of exotic breeds of Poultry.
- \$ Establishment of nutrient status of locally available feed ingredients for ration formulation.

Adaptability and disease management of quail species (coturnix coturnix japonica) in Nigeria.

Objectives

- \$ To adapt the quail in all agro-ecological zones in Nigeria.
- \$ To identify diseases that may hamper productivity and how to control them.
- \$ To determine nutrient requirements for optimum health and productivity
- \$ To encourage quail farming in village backyard and commercial farms.
- \$ To encourage the use of quail for biomedical research.

Achievements:

The foundation stock of the quail is still being maintained in Vom. Mortality patterns of quail

2002 Annual Report

birds from day old to adult stage have been identified. Research on protein and energy requirements of Japanese quail have been completed. Hatchability performances of quail eggs incubated at different positions have been studied. Management practices, disease surveillance and management of ostrich.	\$	To determine the nutritional requirement for growth and egg production.
birds from day old to adult stage have been identified. Research on protein and energy requirements of Japanese quail have been completed. Hatchability performances of quail eggs incubated at different positions have been studied. Management practices, disease surveillance and management of ostrich.	\$	To identify common disease problems affecting ostriches.
birds from day old to adult stage have been identified. Research on protein and energy requirements of Japanese quail have been completed. Hatchability performances of quail eggs incubated at different positions have been studied. Management practices, disease surveillance and management of ostrich.	\$	To determine rate of egg production, peculiar laying pattern and hatchability of ostrich eggs.

Objectives

\$ To study the most economic method of managing ostrich under intensive condition of management.	Hatchability and management studies of ostrich chicks.
---	--

Achievements

Ten eggs have been layed so far.

Two ostrich chicks were hatched out of the ten eggs layed, more are expected to hatch.

Proper housing of adult ostriches was completed. One adult female ostrich was lost as a result of neck and leg injuries

Adaptation and production of a gene pool of various ornamental birds for disease resistance and production.

Various ornamental birds have been multiplied and crossed with local birds to determine their resistance to various diseases. These include

Disease surveillance in guinea fowls.

Objectives

To identify common diseases affecting guinea fowls under intensive management systems.

To find ways of preventing and controlling such diseases for improved productivity.

B Naked neck (or SK 88), Black Bantam, Milles Fleurs Arancana and Phoenix.

Management and disease surveillance of ducks

Reports

2002 Annual Report

Work is presently going in the following:

Multiplication of khaki Campbell ducks.

Identification of common causes of mortality.

Feed efficiency of khaki Campbell ducks as compared to local ducks

Achievements

More khaki Campbell ducks and local ducks were multiplied and sold to farmers for rearing.

Egg production has increased. Less mortality was recorded. Proper housing for adults and ducklings is near completion.

Research activities

Adaptation and disease management of ostrich (*struthio camelus*), diseases of Japanese quail under intensive management system in Nigeria.

2002 Annual Report

	Layers	Chicks/Growers/C ocks	Total culls	Egg production	% Broken eggs(daily)
Egg vaccine Section	3241	1623.7	188.7	44889.8	10.4
Quail	3795.5	8563.8	3821.8	11122.3	12
Ducks	365.7	19.5	32.3	231.8	15.7
Khaki Campbell Ducks	37.7	18.3	3.8	135	12.6
SK 88	35.2	99.2	63.1	148.3	32.5
Guinea Fowl	432.1	1706.5	352.9	1417.1	16
Black Bantam	187.1	196.6	138.3	211.4	15.1
Geese	12.3	14.3	0.2	20.3	4.3
Ostrich	3.3	10.7	0.5	1.3	0
Research Layers	17.5	740	188.3	0	0
Pea Fowl	2	0	0	0.75	0
Table egg layers	326.1	244.3	126.6	4621.8	15.8

Table 6: Stock Position of Birds in 2002 (Annual Mean)

Eggs Collected	Eggs Set	Chicks Hatched	Eggs Broken	Infertile	Dead Embryo	B/F
-------------------	----------	-------------------	----------------	-----------	----------------	-----

2002 Annual Report

Vaccine	45366.9	11067	0	3779	0	0	25777.9
Birds							
Quail	11552.8	8688.8	5493.7	1209	1312.9	1925.8	1190.5
SK 88	148.3	97.7	64.3	52.5	21.4	21	0
Guinea Fowl	1416.8	129	635.3	207.7	233.7	259.6	37.5
Ducks	231.8	197	18.8	43.4	33.3	39.3	53
Khaki	179.9	134.3	24.7	29.9	41.7	57.2	0
Campbell							
Commercial	4612.8	0	0	385.1	0	0	4040.7
Layers							
Black	255.6	207.4	154	52.3	25.3	37.9	0
Bantam							
Geese	20.3	20.1	1.3	0.4	7.2	8	0
Ostrich	1.5	1.5	0.4	0	0.5	0.5	0

Table 7: Mean Egg Disposal

Month	Breeder	Layer	Grower	Chicks
January	11	9	17	7
February	8	8	16	5
March	22	3.9	-	2

2002 Annual Report

April	18	3	-	4
May	24	6	-	4
June	21	8	-	5
July	20	8	-	4
August	15	9	-	3
September	15	5	-	4
October	15	6	1 (Broiler)	3
November	25	13	12 (Broiler)	7
December	17	7	21 (Broiler)	50
Total	211	85.9	67	98
Mean	17.6	7.2	5.6	8.2

Table 8: Feeds Collected

LIVESTOCK INVESTIGATION

DEPARTMENT

The major activities of the Department are those of adaptation of exotic animals through

cross breeding, provision of animals for vaccine production and for research, production of forage livestock, and feed formulation . The farm is divided into ten sections: Health, Dairy, Piggery, Beef, Cultivation, Feed mill, Calves/Equine, Goat and Sheep, Lab cattle and liquid Nitrogen.

Health Section

This Section oversees the health needs of livestock on the farm. Animals were treated for such conditions as pneumonia, helminthiasis, coccidiosis, arthritis etc. The Unit also vaccinated animals against Anthrax and Black quarter. Animals were also dewormed and sprayed with acaricides to prevent ectoparasitism.

Small Ruminant Section

The Section bred, reared and managed sheep and goats. 42 sheep and 137 goats were reared for research and other uses.

Feed Mill Section

5,500 kg of feed for small ruminants, 16800kg for large ruminants and 8000kg for pigs during the year.

Beef Section

The Section maintained 45 animals consisting of 21 cows, 7 bulls and 17 calves.

Cultivation Section

Calf & Equine Section

During 2002 the section maintained 24 calves and 5 horses.

Piggery Section

The section suffered losses between 1998 and 2001 due to the out break of African Swine Fever which virtually wiped out the pig population leaving two females and one male from thirty three pigs were raised in 2002.

The Section was responsible for pasture management and grain production. Six paddocks were rehabilitated and 855 Tons of silage was produced from 15 Hectares cultivated with maize. 2000 bales of hay and 12 bags

STORES

The activities of the section include the following

- \$ To make available a balanced flow of raw materials, components, tools etc necessary to meet operational function.
- \$ To provide maintenance materials, spare parts and general stores as required.
- \$ To receive and issue work-in-progress finished goods/products.
- \$ To accept and store scrap and other discarded materials.

Achievements

In line with the stores objective of rendering service to all operating departments effectively, by balancing stock holding against economy; procurement activities were carefully tailored towards meeting current operational requirements. A total of 54,423,742 doses of vaccine were received from the producing departments out of which 51,850,338 doses were dispatched to customers as against 49 million doses dispatched in the preceding year.

In addition stock balance reduced to just over 3 million as against over 13 million doses in the year 2001. This trend means that there was an increase sales and reduction in carrying cost and also reduction in vaccine expirations.

Main Stores

Stock Review, Stock Indexing, Stock Costing, Documentation and Reconciliation, Material receipt issue and posting and Material Handling.

Ledger Section

Fifo Costing, Material posting of Receipts and posting, Material Valuation for all classes of stores.

Inventory Section

Updating of inventory in offices and quarters, Management of scraps, Recording of furniture and equipment returned as faulty and unserviceable.

Dagwom Farm Store

2002 Annual Report

Bulk purchase of feeds-in-season and their storage, Proper preservation, Receipt of finished products and issuance to user departments.

Rooms to Despatch, Recording of receipts and uses of vaccines, filing of customer invoices and receipts and the maintenance records of expired or broken vaccines returned from Laboratories.

Vaccine Despatch

Receipt of vaccines from producers to stores cold room, Issues of vaccines from Cold

ACCOUNTS & FINANCE DEPARTMENT

Duties of the Department include: Maintenance of Account Books and Records, Control of receipts and disbursement of capital and recurrent funds and internally-generated

Revenue. General payments, i.e. staff salaries etc, reconciliation of Government Accounts and procurement and custody of government assets.

	Budgeted		Actual	
	2001	2002	2001	2002
Federal Government	530,212,59	1,164,862,50	365,278,27	422,004,46
(Capital & Recurrent)	5	0	5	4
State Government	0	0	0	0
World Bank	0	0	0	0
Internally Generated	66,164,512	71,250,000	77,515,243	88,180,281

2002 Annual Report

Fund				

Table 9 : Budget Performance for 2001 and 2002

	2001	2002
Recurrent Expenditure	380,664,453	456,016,163
Capital Expenditure	72,465,000	100,093,347
Special Projects	0	0
Other (please specify)	0	0
Other (please specify)	0	0

Table 10: Funds Utilization

ADMINISTRATION DEPARTMENT

Establishments and Pension Unit

A total of 127 staff were employed in 2002. Most of the new appointees were drawn from the casual staff who were working in various Departments. The breakdown is given. Out of this number, 25 were newly employed while 102 were absorbed from the Casual staff.

Maintenance, Security and Welfare

The Workshop is a maintenance Section of the Institute. In 2002 the workshop undertook the following services/repairs by the various units it has.

Mechanical Unit

In the year 2002 the unit renovated six (6) vehicles which were given to some outstations

and Departments alike. In the same year four (4) other vehicles were sent to be repaired outside the Institute to be allocated to Departments and some outstation laboratories.

Plumbing Unit

This unit has consistently ensured water supply in the Institute for use in Laboratories/Offices as well as in staff quarters.

Plant Maintenance Unit

The unit is always on the alert to ensure that the Generators are in working condition which supply power for the production of vaccines and other uses in the absence of electricity.

Electrical Unit

The Unit checks and maintains electricity supply in the Institute to avoid disruption of vaccine production. It also corrects any electrical fault as may be reported in the residential quarters.

Welding Unit

Mason Unit

The mason unit carried out major work at the NVRI Staff School, the Poultry, Dagwom, Bacteriology Production, Virology in addition to maintaining some staff quarters and offices.

The Unit constructed cages for use at the Poultry and also repaired some iron gates and burglar-proofs at the staff school etc.

Security Unit

Security personnel undertook courses to update themselves with the current security challenges.

The Unit was always placed on the alert to avert any problem which might get into the Institute as a result of the crisis which had engulfed Plateau State generally. The Institute did not witness any such crisis largely due to the vigilance mounted by the Institute's Security.

Staff Welfare

The welfare Committee in addition to other functions in the year 2002 inspected existing kiosks and made recommendations for the relocation of all Kiosks in the Institute to a

central place where the Institute would eventually build a mini market. Kiosk owners/those who intend to own some were called for a meeting where they were accordingly briefed.

Renovation of Houses

Following the Governing Board's approval of the Managements proposal to renovate Staff Houses in the Institute, four (4) twin houses along Brandt Avenue have been renovated. Similarly, fourteen houses at the Vaccine Complex are presently at their various stages of completion under the supervision of the Federal Ministry of Works and Housing.

Painting Unit

In 2002, the Painting unit had carried out the painting and replacement of glasses at the Staff School, the Workshop, Virology, Bacteriology, the The Planning Department was created under the Planning and Development Division, a new division that came into existence in July 2002 with the appointment of an Assistant Director (Planning). The Division is responsible for

Entrance to the Directors office and some residential quarters which included No.3 Sansi Road, No.18 Vaccine Complex Quarters, No.9 Brandt Avenue, No. 12 Musa Goni Road etc.

Drivers Unit

Three (3) accidents were witnessed by some of our drivers on the way to Abuja, at Adoka in Benue State in which a life was lost and also at Mangu in which the Institute lost one of its drivers.

PLANNING DEPARTMENT

coordinating the formulation of capital programmes/projects, monitoring and the evaluation of all planned programmes and projects being implemented by the various Departments of the Institute. The Division is also

expected to generate and fortify the Data bank of the Institute. The Division is trying to put structures and facilities in place for effective functioning of the Departments under it.

Achievements

- § Transformation of the Institutes Nominal Roll preparation format from its colonial format to a corporate format, for better record keeping.
- § A mock Institute budget preparation involving all Departments was coordinated by Planning Department.
- § A new PVC ID/name Tag was introduced. Its preparation was coordinated and completed by the Planning Department, thereby giving uplift to the corporate image of staff.
- § A data bank of vaccine production is being developed by the Department.
- § The Department reformed the outlook of the existing Institutes calendar thereby making it more acceptable. It also helped to increase the marketability of the Institutes products and services.

§ In conjunction with the protocol unit, this Department coordinated all courtesy visits to the Institute.

NVRI STAFF SCHOOLS

The annual intake of the schools is 120 pupils in Primary School and 145 in the Secondary School with a total population of 903 pupils and 814 students.

2002 Results

Out of 40 pupils who sat for the National Common Entrance Examination 26 passed (65%). In terms of the Plateau Common entrance Examination, all the 78 pupils in class 6 passed.

In the Secondary School 96% passed the JSCE, 73.1% passed WASSC, while 95.2% passed the SSC Exams in 2002.

2002 Annual Report

Achievements

Cooperation and prompt response to School needs by the Management Board of the School and from the Federal College of Animal Health and Production Technology (FCAHPT) and Federal College of Veterinary and Medical Laboratory Sciences (FCMLS) for the use of their facilities routinely and during external examinations helped greatly.

Introduction of the weeding system for JS II and SS II classes. The Students must pass at 50%
Two students represented the State (Plateau) at the first ever Maltina organised athletics competition in Lagos. Nine teaching Staff were recruited to beef up the Staff strength. Extensive renovation work was carried out in the School by the NVRI Management. Boosting of the moral of the teachers by the Management in areas of the

average before they could be promoted to Examination class (JS 3) and (SS 3). This has improved our performances in external examination like the Junior School Certificate Examination (J.S.C.E.), West African Senior School Certificate Examination (WASSCE) and the Senior School Certificate Examination by the National Examination Council (NECO).

Introduction of other courses like Electrical Electronics and Computer appreciation Programmes.

payment of the new house rent and other allowances, beautification of the School environment with flowers Employment of a School Nurse and the granting of autonomy for the Primary Section to run independently in order to enhance efficiency.

STAFF REPORTS

Annual Performance Evaluation Report (APER) forms

The Institute is in the process of conducting a promotion exercise for senior staff who were last promoted in 1999 or before.

Staff Audit Exercise

The Internal Audit Committee has submitted its report to the Board. The Board has approved the implementation of the report where a number

of staff have been re-designated to various posts commensurate with their qualifications.

Staff Promotions

A total of 172 staff were promoted to various posts. Of this number 124 were senior staff.

Retirements

Nineteen staff were retired on the grounds reaching the age of 60 years or 35 years of service.

Deaths

9 staff died while in the service of the Institute. The names of the deceased staff is shown below:

Name	Date of entry into service	Date died in service	Length of service
Joshua D. Chung	25-8-99	23-3-02	3 Yrs
Daniel Rwang	9/7/82	24/5/02	20 yrs
Cletus M. Ojah	22/10/92	12/7/02	9 yrs
Alhassan Samaila	27/12/80	11/9/02	22 yrs
Paul J. Tumba	22/8/83	20/9/02	19 yrs

2002 Annual Report

S. M. Magaji	1/10/98	20/12/02	4 yrs
Dr. O. A. Adewuyi	13/7/79	21/12/02	23 Yrs

Staff Training

Three members of Staff Mrs A. L. Samuel, Mr. Garba H. Maikidi and Miss Hajara A. Yusufu attended the Nigerian Society of Biochemistry & Molecular Biology Conference on Sept. 18-24th 2002 at A.B.U., Zaria.

Mr Bitrus Yakubu Dr. N. J. Shaibu, and Mr. A. Sulieman attended a for 2-week training on Six (6) Research Officers and one (1) Livestock Officer attended various short courses Overseas from two (2) weeks to three (3) months. Nine (9) members of staff from the various departments were also granted approval for Bachelor's degree in Medical Laboratory Sciences and Medical Laboratory Technician courses at the Federal College of Veterinary and Medical Laboratory Technology, Vom. One (1)

Practical Standard In-vitro Recombinant DNA Techniques, held in September, 2002 at UNAAB Biotechnology Centre, Abeokuta.

staff from the workshop was sent for a two-year course at the Plateau State Ministry of Works. Forty-two members of staff attended a two-week course in Computer Operation & Management at the Quantum Computer Centre, Jos. Twenty Secretarial Staff attended a five-day Management Course for Secretaries and seven Clerical Staff were sent for Advanced

2002 Annual Report

course for Clerical Officers and Registry staff organized by the Industrial training Funds, Jos.	\$	Review of Rural & Agriculture Development Institutions team on the 14 th of November
Two Officers attended a training programme on Veterinary Epidemiology at ABU Zaria. The course was organised by the Federal Department of livestock & Pest Control services in collaboration with the united States Department of Agriculture.	\$	Participants of National Institute for Policy & Strategic Studies NIPSS on the 19 th of November
	\$	Middle Belt REFILS Steering Committee on the 21 st of November
	\$	Committee of Directors of Research Institutes (CODRI) Meeting was hosted by the Institute between 24 th -26 th September
Visitors		
The Institute has continued to play host to visitors on study tours and training. The following visitors were received during 2002	\$	Executive Governor of Plateau State Chief Joshua C. Dariye on the 28 th of November
\$ The Director-General National Institute for Policy & Strategic Studies, Kuru visited the Institute on 27 th of September	\$	World Health Organisation team from University of Philadelphia, USA on the 21 st of November
\$ The Department of Budget, Monitoring and Evaluation from Federal Ministry of Finance on the 14 th of October	\$	A three-day Workshop on Women in Agriculture (Poultry Production) held from 8 th - 10 th October at which 150 participants were hosted
\$ National Agricultural Research Programme Police Investigating team on the 1 st of November		

Publications

Okewole, P.A. (2002). Clinical, Pathological and Immunological Studies of the Japanese quail to Infectious Bursal Disease Virus (IBDV) infection. PhD Thesis submitted to the Faculty of Veterinary Medicine, University of Ibadan, Nigeria.

Nwankpa, N. D.; Lombin, L. H., Molokwu, J. U., Okewole, P. A. and Usman, H. (2002). The incidence of Fetal losses in slaughtered animals: A retrospective study of the Jos abattoir, Plateau state, Nigeria (1991 - 1993). **Book of Abstract 39th Annual Congress of the Nigerian Veterinary**

Nwankpa, N. D., Irokanulo, E.; Lombin, L. H.; Okewole, P. A.; Molokwu, J. U.; Chukwu O. C. and Onovoh, E. O. (2002). Prevalence of Dermatophytes in cattle and their owners in Jos-South Local Government Area of Plateau state, Nigeria. **Journal of the Nigerian Veterinary Medical Association (In press).**

Medical Association, 27th - 31st Oct., 2002, Sokoto.

Nwankpa, N. D.; Gulma, U. M.; Molokwu, J. U., Lombin, L. H.; Okewole, P. A. and Ahmed U. (2002). Sub-clinical Coccidiosis in Poultry Farms: A case study of Kano State. **Book of Abstract 39th Annual Congress of the Nigerian Veterinary Medical Association, , 27th - 31st Oct., 2002, Sokoto.**

Nwankpa, N. D.; Gulma, U. M.; Dogo, G.; Lombin, L. H., Onovoh, E. O. and Iliya R. D. (2002). Prevalence of Dermatophytes in Small Ruminants and their owners in Jos-South Local Government Area of Plateau State, Nigeria. **Journal of the Nigerian Veterinary Medical Association (In press).**

- Nwankpa, N. D. (1989). The Trypanocidal Effect of *Morinda lucida* Methanolic leaf extract on White albino mice. (Submitted for Publication on White albino mice. (Submitted for Publication Journal of the Institute for Pharmaceutical Research, Abuja, A. D. V. M. Thesis).
- Nwankpa, N. D., Musa, U. G., Onovoh, E. O., Lombin, L. H., Chukwu, O. C. and Ogedengbe, J. D. (2002). Incidence of Dermatophytes in School Children associated with Pets in Vom Plateau State, Nigeria. *Nigerian Veterinary Medical Journal* (In press).
- Odugbo, O. M., Umoh, J. U., Odama, L. E. and Makinde, A. A. (2002). Serotypes of *Pasteurella haemolytica* from pneumonic lungs of sheep in Northern Nigeria. *Small Ruminant Research* (In Press).
- Lamin, S., Nwankpa, N. D.; Molokwu, J. U., Lombin, L. H. and Chukwu, O. C. (2002). The prevalence of gastrointestinal nematodes in bovine: A study of the Fulladu District of the Upper river Division, Gambia. *Book of Abstract 39th Annual Congress of the NVMA, 27th - 31st Oct., 2002, Sokoto.*
- Samuel, A. L. ,Ladeji, O., Temple, V.J.O. (2002). Effect of *Balanites aegyptica* (Aduwa) Seed Kernel Meal on certain Biochemical Haematological Parameters in rats. *Nigerian Journal of Biotechnology*. 13(1): 64-68.
- S.E. Atawodi; Gbodi, T.A.; Mohammed, L.U. and A. Atiku (2002). Serum Biochemical and Mineral Levels in Apparently Normal Dromedarian Camels. *Nigerian Journal of Biotechnology*. 13(1): 28 - 32.
- Haruna, E. S.; Adene, D.F. and Gerrit, V.(2002). Detection of Infectious Bursal Disease Virus (IBDV) in Naturally Infected Chickens in Nigeria by Reverse - Transcription Polymerase Chain Reaction (RT-PCR). Presented at the 39th Annual Conference of

the NVMA, held at Sokoto from 27th - 31st
October, 2002.

Makinde A. A. Majiyagbe K. A; Lombin L.H;
Shamaki D; Muhammad L. U; Chima J. C; &
Garba A. 2002. Serological Appraisal of
Economic Diseases of Livestock in the One-
humped camel (*Camelus Dromedarius*) in
Nigeria. Camel Newsletter No.18 Pp 62 -73.

Irokanulo E. O; Akueshi C. O; Makinde A. A;
Nwobu G. O (2002). Detection of Cryptococcal

Makinde A. A; Ezeh A. O; Majiyagbe K. A;
Lombin L. H; Chima J. C & Molokwu J.U
(2002). *Toxoplasma gondii*. Antibodies in

Antigens in Patients with Typhoid fever-like
Syndrome in Vom, Nigeria. Journal of Life and
Environmental Science No.4 (2): 236 -244.

Makinde A. A; Chiezey N; Okafor I & Garba A
(2002). Specific Antibody Responses in Cattle
Naturally infected with *Facsiola gigantica* &
Dirocoelium Hospes in Nigeria. African Journal
of Natural Sciences No.5 : 30 -31.

Animal, Poultry & Man in Plateau and Nasarawa
States, Nigeria. African Journal of Natural
Sciences 5: 80 -81.

Abbreviations Used in This Report

ASF	African Swine Fever
FAT	Fluorescent Antibody Technique
NAPRI	National Animal Production Research Institute
FCT	Federal Capital Territory
ND	New Castle Disease
MDT	Mean Death Time
IVPI	Intravenous Pathogenicity Index
CBPP	Contagious Bovine Pleuro Pneumonia
CFT	Complement Fixation Test
TCP	Technical Cooperation Project
FAO	Food & Agriculture Organisation
IAEA	International Atomic Energy Agency
EQAP	External Quality Assurance programme
ELISA	Enzyme-linked Immunosorbent Assay
RBPT	Rose Bengal Plate Test
SAT	Serum Agglutination Test
MRT	Milk Ring Test
FMD	Foot & Mouth Disease
IBD	Infectious Bursal Disease
EDS	Egg Drop Syndrome

PARC	Pan African Rinderpest Campaign
PACE	Pan African Programme fro the Control of Epizootics
OIE	Office of International Epizootics
NDV	New Castle Disease Vaccine
ASV	Anthrax Spore Vaccine
BQV	Black quarter Vaccine
FTV	Fowl Typhoid Vaccine
HSV	Haemorrhagic Septicaemia Vaccine
FCV	Fowl Cholera Vaccine
OFAR	On-Farm Adaptive Research
MTRM	Monthly Technology Review Meeting
JSCE	Junior School Certifdcate Examination
WASSCE	West African Senior School Certificate Examination
FCAHPT	Federal College of Animal Health & Production Technology
NECO	National Examinations Council
APER	Annual Performance Evaluation Report
CODRI	Committee of Directors of Research Institutes

MISSION STATEMENT

*To be the
Veterinary
in Africa,
international
vaccines and
the identification,
eradication of
important livestock diseases, through best practices, research excellence and
applying modern technology, with highly motivated trained and
experienced personnel.*



*foremost
Research Institute
producing
quality standard
offering services for
control and
economically*

Address

National Veterinary Research Institute, Vom

P. M. B 1, Vom, Plateau State, Nigeria

Phone: +234(0)90601567,+234(0)73-281452, +234(0)-73-281453

e-mail: nvri1924@yahoo.com

website: www.nvrinigeria.org

NVRI is a parastatal of the Federal Ministry of Agriculture & Rural Development