Abstract of Animal Research International (2004) Volume 1 Number 3

Animal Research International (2004) 1(3): 133 – 139

EFFECT OF DIETARY SUPPLEMENTATION OF INORGANIC PHOSPHORUS ON FEED INTAKE, PROTEIN INTAKE, FEED CONVERSION AND PHOSPHORUS GAIN/LOSS OF THE HYBRID AFRICAN CATFISH *Heterobranchus bidorsalis* (♂) X *Clarias gariepinus* (♀) FRY

[1]UGWU, Lawrence Linus Chukwuma and [2]MGBENKA, Bernard Obialo
[1]Department of Animal Production and Fisheries Management, Ebonyi State University, P.M.B 053, Abakaliki, Ebonyi State, Nigeria.
[2]Fisheries and Hydrobiology Research Unit, Department of Zoology, University of Nigeria, P.O. Box 3146, Nsukka, Enugu State, Nigeria.

Corresponding author: Ugwu, Lawrence Linus Chukwuma. Department of Animal Production and Fisheries Management, Ebonyi State University, P.M.B 053, Abakaliki, Ebonyi State, Nigeria

ABSTRACT

Sixteen experimental diets were formulated to include four groups of inorganic phosphorus (P) sources {monosodium phosphate (MSP), monopotassium phosphate (MPP), monocalcium phosphate (MCP), and dicalcium phosphate (DCP) at four levels {A(0.40%), B(0.60%), C(0.80% and D(1.20%)}. Two controls of a non-phosphorus supplemental diet (CD) and a purified diet (PD) were fed along with the other 16 experimental diets to the fry of Heterobranchus bidorsalis X Clarias gariepinus hybrid (mean weight, 1.5 ± 0.12 g) at 5% body weight per day for 70 days. The results showed that the feed intake (FI), the protein intake (PI), the food conversion ratio (FCR) and the phosphorus gain/loss (PGL) varies significantly among the 18 diets tested (P < 0.001). The effect of the inorganic P sources on FI, PI, FCR and PGL was also significantly different (P < 0.001). The MSP supplemented diets appeared to elicit better responses in the fish than any of the other P-supplemented (MCP, MPP and DCP) diets. A comparatively higher quantity of protein was consumed by the fish fed the MSP diets (15.28%) than other P-supplemented diets. A loss in the percent phosphorus content of fish flesh fed MSP diet was observed (-0.04%).Based on the above, MSP diets were the best for enhancing growth.

Keywords: Inorganic phosphorus**,** *Heterobranchus bidorsalis* X *Clarias gariepinus,* Catfish hybrid, Protein Intake, Food Conversion Ratio

Animal Research International (2004) 1(3): 140 – 143

INFLUENCE OF MILKING FREQUENCY ON LACTATION CHARACTERISTICS OF RED SOKOTO GOATS

AKPA, Gerald Nwachi., EDINO, Okpanachi and YASHIM, Suleiman
Animal Science Department, Ahmadu Bello University, Zaria, Nigeria

Corresponding author: Akpa, Gerald Nwachi. Animal Science Department, Ahmadu Bello University, Zaria, Nigeria

ABSTRACT

The study was carried out to determine the consequences of milking frequency on total yield, average-daily yield, peak day, flow rate, dairy merit and persistency in Red Sokoto goats. Thirty lactating does were divided into three categories on milking frequencies, once a day, trice a day and thrice a day milking of 10 animals each. All the does were at

their third lactation and were hand milked for a period of 120 days postpartum. Over the 120 days lactation period, total yield, average daily yield, peak yield, peak day, flow rate, dairy merit and persistency were 55.5±2.95 kg, 0.466±0.025 kg, 0.791±0.042 kg, 33.8±4.01 d, 3.7±0.25 g/d, 10.6±0.21 % and 96.1±7.92 %. Milking frequency significantly (P<0.05) influenced total yield, average daily yield, peak yield, and milk flow rate, but not peak day, dairy merit and persistency. Milk yield characteristics increased with milking frequency, but at a decreasing flow rate. In Red Sokoto goats milking frequency affected milk yield characteristics but not dairy merit and persistency. The high lactation persistency of these goats was an indication of their ability to maintain milk production throughout lactation.

Keywords: Milking frequency, Milk yield, Dairy merit, Lactation persistency, Red Sokoto goats

Animal Research International (2004) 1(3): 144 – 147

PHENOTYPIC CHARACTERISTICS OF THE AFRICAN GIANT SNAIL, *Archachatina marginata* SWAINSON

[1]OKORIE, Peter Ugochukwu and [2]IBEAWUCHI, Innocent Izuchukwu
[1]Department of Animal and Environmental Biology, Imo State University, Owerri, Imo State, Nigeria
[2]Department of Crop Science and Technology, Federal University of Technology, Owerri, Imo State, Nigeria

Corresponding author: Okorie, Peter Ugochukwu. Department of Animal and Environmental Biology, Imo State University, Owerri, Imo State, Nigeria.

ABSTRACT

Observations were made on 'gigantism' and albinism in the giant snail, Archachatina marginata. Gigantic snails were initially about twice the size of normal snails of same age. However this growth superiority of 'gigantic' snails apparently slowed down with age. Albinism in the snails was expressed in form of creamy-white bodies instead of the normally brownish colour. Albino snails however retained normal shell colouration. All offspring of these albinos maintained these same characteristics. There was no difference in mortality rates of albino and normal snails. 'Gigantism' and albinism have serious implications for commercial snail farming.

Keywords: Albinism, *Archachatina marginata*, Giant land snail, Gigantism

Animal Research International (2004) 1(3): 148 – 152

EFFECT OF FEEDING *Hordeum jabatum* HAY SUPPLEMENTED WITH *Leucaena leucocephala* ON NUTRIENT DIGESTIBILITY IN SHEEP

[1]OSAKWE, Isaac Ikechukwu and [2]DROCHNER, Winfried
[1]Department of Animal Production and Fisheries, Ebonyi State University, PMB 053, Abakaliki, Nigeria
[2]Institute of Animal Nutrition (450), University of Hohenheim, 70599 Stuttgart, Germany

Corresponding author: Osakwe, Isaac Ikechukwu. Department of Animal Production and Fisheries, Ebonyi State University, PMB 053, Abakaliki, Nigeria. Phone: 043-300-448. 08034910687 Email: osakwe_i@yahoo.com

ABSTRACT

The fermentation profiles and nutrient digestibility of Leucaena leucocephala as a supplement to Hordeum jabatum hay was investigated using twelve castrated sheep averaging 24.4 ± 2.2 kg body weight (BW). Six of the sheep were fistulated at the rumen

and used for ruminal pH, ammonia and volatile fatty acid determination in rumen fluid. Dried leaves of Leucaena leucocephala were offered as supplement at two levels, 25% (diet 2) and 50% (diet 3) of dry matter intake (DMI), replacing Hordeum jabatum hay diet. The basal hay diet without supplementation was diet 1. Rumen liquor was sampled one hour before, and one, three and five hours after the morning feeding. The sheep were subjected to digestibility trial. Sheep on diet 3 had higher (P<0.05) ruminal pH than sheep on diets 1 and 2, respectively. The ruminal ammonia concentration of sheep on diet 2 was superior (P<0.05) to those on diet 1 but not with diet 3. Diet 1 had superior (P<0.05) volatile fatty acid concentration than diets 2 and 3, respectively. There were no differences (P>0.05) in the dry matter, organic matter, neutral detergent fibre, acid detergent fibre and hemicellulose intake among treatments. There were however, significant (P<0.05) differences in the digestibility of nutrients among treatments. It was concluded that dried leaves of Leucaena leucocephala has a forage potential for livestock farmers. It can be classified as a plant of moderate fodder value.

Keywords: *Leucaena leucocephala,* Rumen parameter**,** Nutrient digestibility, Wethers

Animal Research International (2004) 1(3): 153 – 154

LENGTH-WEIGHT RELATIONSHIP AND CONDITION OF FRESHWATER SHRIMPS *Atya gabonensis* AND *Macrobrachium felicinium* FROM THE MU RIVER, MAKURDI, NIGERIA

OKAYI, Gabriel and IORKYAA, Atsehe
Department of Fisheries and Aquaculture, University of Agriculture. P.M.B. 2373, Makurdi, Nigeria

Corresponding author: Okayi, Gabriel. Department of Fisheries and Aquaculture, University of Agriculture. P.M.B. 2373, Makurdi, Nigeria. Email: **rgokayi@yahoo.com**

ABSTRACT

Length-weight parameters (a and b) of the equation: $W = aL^b$ were estimated for two freshwater shrimp species Atya gabonensis and Macrobrachium felicinium caught bimonthly from October 2001 to March 2002 using brush traps in the Mu river. The mean b values were 2.989 ± 0.328 and 3.003 ± 0.318 for A. gabonensis and M. felicinium respectively. The values did not differ significantly (P < 0.05) from 3, showing that their growths were isometric, M. felicinium where in better condition than A. gabonensis.

Keywords: Length-weight, Relationship, Condition factor, *Atya gabonensis, Macrobrachium felicinium,* Mu river

Animal Research International (2004) 1(3): 155 – 159

ENDEMICITY OF MALARIA AMONG PRIMARY SCHOOL CHILDREN IN EBONYI STATE, NIGERIA

ANI, Ogonna Christiana
Dept of Applied Biology, Ebonyi State University, Abakaliki, Ebonyi State, Nigeria.

ABSTRACT

A study was undertaken to determine the prevalence of malaria among primary school children in Ebonyi State. The degree of malaria parasite, infection and species of the parasite isolated were used to determine the level of endemicity of the disease. Out of one thousand and two hundred (1,200) primary school children aged between 5 –16 years sampled, the prevalence rate of 40.08 % was recorded. The species of the parasite associated with the disease was Plasmodium falciparum. It was observed that the rate of malaria parasitaemia was higher in younger (aged 5-10 years) than those of older (aged

11-16 years) children. A X^2- test conducted on the infection rate according to ages of the pupils showed significant difference between the age groups indicating that infection was age dependent (P < O.O5) . Greater number of males (243) than females (238) were infected but the infection rate according to sex was found not to be significant and therefore not sex dependent (P > 0.05). Among the Local Government Areas, Ivo had the highest prevalence rate. This was followed by Ishielu and Abakaliki local government areas of Ebonyi State. The results showed that malaria is endemic in the state and a major health problem for school children. The possible effect on academic performance was discussed.

Keywords: Malaria, Prevalence, Children, Endemicity, Parasitaemia, Ebonyi State

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RELATIONSHIPS BETWEEN PHYSICAL BODY TRAITS OF THE GRASSCUTTER (RODENTIA: THRYONOMYIDAE) IN AKPAKA FOREST RESERVE, ONITSHA

[1]IKPEZE, Obiora Osegboka and [2]EBENEBE, Cordelia Ifeyinwa
[1]Department of Parasitology and Entomology, Nnamdi Azikiwe University, Awka.
[2]Department of Agricultural Education, Nwafor Orizu College of Education, Nsugbe.

Corresponding author: Ikpeze, O. O. Department of Parasitology and Entomology, Nnamdi Azikiwe University, Awka. Or POBox 36, Afor-igwe, Ogidi, Anambra State.

ABSTRACT

Physical body traits of nine grasscutters (Thryonomys swinderianus Temminck) were characterized using body weights (BW), body length (BL), heart girth (HG), and height-at-withers (H). Simple linear correlation matrix showed high, positive and significant values among the parameters studied (P < 0.01). The highest coefficient was obtained for body weight and body length (r = 0.9956). The very high associations for body length and heart girth (r = 0.9821) and between body length and height (r = 0.9905) indicate that frame size and absolute height were complementary. Selection for increased measurement in any of the parameter would mean positive significant influence on the other and would lead to increased skeletal stature with concomitant increases in other absolute body measurements. Regression equations from this study could be used to estimate live body weights of grasscutters aged between 2 -10 months.

Keywords: Grasscutter, Physical Body Traits, Estimation, Correlation and Regression Models

Animal Research International (2004) 1(3): 164 – 168

EVALUATION OF TAMARIND (*Tamarindus indica*) SEED MEAL AS A DIETARY CARBOHYDRATE FOR THE PRODUCTION OF NILE TILAPIA *Oreochromis niloticus* (L)

NWANNA, Lawrence., FAGBENRO, Oyedapo and OLANIPEKUN, Sunday
Department of Fisheries and Wildlife, Federal University of Technology, PMB 704 Akure, Nigeria

Corresponding author: Nwanna, Lawrence. Department of Fisheries and Wildlife, Federal University of Technology, PMB 704, Akure, Ondo State, Nigeria.

ABSTRACT

A feeding study was conducted to assess the value of Tamarind, Tamarindus indica seed meal as dietary carbohydrate in the diets of Nile Tilapia, Oreochromis niloticus. Tamarind seeds were used to replace maize at 0, 20, 40, 60, 80, 100 % substitution levels for treatments 1 to 6. Growth trial was conducted in outdoor concrete tanks for 56 days. The

fishes were fed at 4 % body weight twice daily. There were no significant variations in the mean weight gain, specific growth rate (SGR), food conversion ratio (FCR) and protein efficiency ratio (PER) (p >0.05). The apparent digestibility coefficient (ADC) of protein and energy of the fishes fed diets 1 – 6 were similar (p > 0.05). There were no significant differences in the blood total erythrocyte counts, (TEC), pack cell volume (PCV) and red blood cells count (RBC) (p >0.05). Based on the findings, complete replacement of maize with tamarind seed meal in the diets of O. niloticus is recommended.

Keywords: Tamarind, Replacement, Maize, *Oreochromis niloticus*

Animal Research International (2004) 1(3): 169 – 172

SEX DISCRIMINATION AMONG FOUR MORMYRID SPECIES OF ANAMBRA RIVER SYSTEM NIGERIA

[1]NWANI, Christopher Didigwu, [2]INYANG, Nicholas Mathias and [2]EYO, Joseph Effiong
[1] Department of Applied Biology, Ebonyi State University, Abakaliki, Ebonyi State, Nigeria.
[2]Fisheries and Hydrobiology Research Unit, Department of Zoology, University of Nigeria Nsukka, Enugu State, Nigeria.

Corresponding author: Nwani, Christopher Didigwu, Department of Applied Biology, Ebonyi State University, Abakaliki, Ebonyi State, Nigeria.

ABSTRACT

Sex discriminating characters of four mormyrid species caught from Anambra river basin, Nigeria were investigated. Sexual dimorphism occurred in only one transformed character – dorsal fin base length and in four raw morphometric characters namely total length, standard length, dorsal fin base length and anal fin base length. These characters are recommended as key characters in mormyrid taxonomy.

Keywords: Mormyridae, sex dimorphism, Anambra river

Animal Research International (2004) 1(3): 173 – 175

LIPID COMPOSITION OF TWO MARINE FISHES – *Scomber scombrus* AND *Trachurus trachurus*

[1]NJOKU, Obioma Uzoma., [1]ONONOGBU, Ikpendu Christopher., [1]IBE, Chituru Ugochi., [1]NWANGUMA, Bennett Chima and [2]IWUEKE, Adaku Vivien
[1]Lipid and Lipoprotein Research Unit, Department of Biochemistry, University of Nigeria, Nsukka, Nigeria.
[2]Department of Biochemistry, Federal University of Technology, Owerri, Imo State, Nigeria.

Corresponding author: Njoku, Obioma. Lipid and Lipoprotein Research Unit, Department of Biochemistry, University of Nigeria, Nsukka, Nigeria. Email: obynjoku203@yahoo.com

ABSTRACT

Lipids from two species of marine fish – Scomber scombrus and Trachurus trachurus were investigated. Fish oil from Trachurus trachurus had higher oil yield than that of Scomber scombrus. The lipids contain high levels of triacylglycerol 228 – 250 mg%, cholesterol 160 – 235 mg%, and phospholipids 2.2 – 2.4 mg%. Saponification of the different oils yielded saturated and unsaturated fatty acids, such as palmltic, oleic linoleic acids. Hexane and methanol were found effective solvents for separation of fatty acids from the fish oil.

Keywords: Fish oil, Nutrition, Industrial applications

Animal Research International (2004) 1(3): 176 – 180

FACTORS AFFECTING GROWTH AND BODY MEASUREMENTS OF THE GRASSCUTTER (RODENTIA: THRYONOMYIDAE)

[1]IKPEZE, Obiora Osegboka and [2]EBENEBE, Cordelia Ifeyinwa
[1]Department of Parasitology and Entomology, Nnamdi Azikiwe University, Awka.
[2]Department of Agricultural Education, Nwafor Orizu College of Education, Nsugbe.

Corresponding author: Ikpeze, O. O. Department of Parasitology and Entomology, Nnamdi Azikiwe University, Awka. Or POBox 36, Afor-igwe, Ogidi, Anambra State.

ABSTRACT

Overall mean body weights (0.138 ± 0.06 and 0.513 ± 0.03 kg), body lengths (17.24 ± 0.30 and 21.68 ± 0.65 cm), heart girths (12.57 ± 0.18 and 16.83 ± 0.90 cm), and height-at-withers (7.39 ± 0.14 and 9.86 ± 0.52 cm) of the grasscutter (Thryonomys swinderianus Temminck) at birth and 60 days of age, respectively, were recorded. Litter size and sex significantly influenced body weight and linear body measurements in the grasscutter. Mean birth weight (0.173 ± 0.02 kg) of rats born singles was significantly different from that of twin births (0.135 ± 0.08 kg) and triplets (0.135 ± 0.09 kg) (P < 0.05). Male grasscutters with a mean birth weight of 0.148 ± 0.01 kg were heavier (P < 0.05) than the females, which weighed 0.128 ± 0.02 kg. Average daily weight gain for the first 60 days for males (0.007 kg/d) was significantly different from that of females (0.005 kg/d) (P < 0.05). Parity had no significant effect on the rat's birth weight, weight at 60 days of age, and average daily weight gain for the first 60 days. Litter size, sex and parity did not have significant effect on the linear body measurements of the grasscutter at birth (P > 0.05). However litter size and sex had significant influence on body length and heart girth of the grasscutter at 60 days of age (P < 0.05). At 60 days the mean body length (23 ± 0.28 cm) and heart girth (18.13 ± 0.23 cm) of rats born singles were longer and larger than those of twins (21.66 ± 0.89 and 16.82 ± 0.76 cm) and triplets (21.59 ± 0.96 and 16.71 ± 0.80). Males also have longer body length and larger heart girth than females at that age.

Keywords: Grasscutter, Growth, Body Weight, Linear Measurements

Animal Research International (2004) 1(3): 181 – 189

COMPARISON OF CLINICAL, PARASITOLOGICAL AND SEROLOGICAL DIAGNOSTIC METHODS FOR THE DEFINITIVE DIAGNOSIS OF ONCHOCERCIASIS IN NSUKKA SENATORIAL ZONE

UZOEGWU, Peter Nzeemndu and ALOH, Godwin
Tropical Diseases Research Laboratory, Department of Biochemistry, University of Nigeria, Nsukka, Nigeria.

Corresponding Author: Uzoegwu, P. N. Tropical Diseases Research Laboratory, Department of Biochemistry, University of Nigeria, Nsukka, Nigeria. E-mail: Peteuzoegwu@yahoo.com.

ABSTRACT

Clinical, parasitological and serological diagnostic methods were compared for definitive diagnosis of human onchocerciasis in three endemic communities of Nkpologu, Ukpabi and Obimo; located at differing distances from the bank of Adada river in Nsukka

senatorial zone of Enugu State, Nigeria. The results revealed that 43.98%, 2.78%, 57.60% and 76.55% of the total number of volunteers tested were positive by most common and rare clinical symptoms, skin biopsy and Enzyme-linked immunosorbent assay (ELISA) respectively. Of those seropositive, 86.02% had microfilariae in their skin. Similarly, 67.28% and 91.91% of those who were positive by ELISA and skin biopsy respectively, displayed onchocercal nodules either on the head, trunk, groin, laps or near the knee. However, 96.76% of those with nodules had microfilariae in their skin. The results further showed that the incidence of onchocerciasis and worm burden in the three communities vary inversely with their respective distances from the river. Considering the relative significance of these methods in the diagnosis of onchocerciasis, we recommend the use of a combination of the most common clinical manifestations, skin biopsy and ELISA in the diagnosis of onchocerciasis, at least for epidemiological studies, until a single definitive diagnostic method is developed.

Keywords: Human onchocerciasis, Clinical symptoms, Skin biopsy, ELISA

Animal Research International (2004) 1(3): 190 – 199

THE BIOLOGY OF THE WEST AFRICAN CLARIID, *Clarias macromystax* GUNTHER, 1864 (OSTEICHTHYES: CLARIIDAE) IN A NIGERIAN RIVER BASIN

EZENWAJI, Henry Maduka Godfrey
Fisheries and Hydrobiology Research Unit, Department of Zoology, University of Nigeria, Nsukka

ABSTRACT

The biology of the West African clariid, Clarias macromystax, was studied in Anambra river basin, Nigeria. The clariid occurred more abundantly and frequently in forest floodplain ponds than in other habitats, and was totally absent in the river systems. Length ranged from 9.7 to 30.2 cm TL and weight from 9 to 168 g; females were heavier, but not longer, than males. The b-values (2.4190-2.5209) of the total length-weight relationships exhibited negative allometric function. Mean relative condition, K_n, was better in females than males but showed a definite cycle in both sexes. Over 50% of both sexes were mature at 15.1-20.0 cm TL in their first year of life. Fecundity ranged from 2.136×10^3 to 37.250×10^3 (mean $14.942 \times 10^3 \pm 11.248 \times 10^3$) and correlated highly and positively with length, body weight and ovary weight. Ovary weight was the best predictor of fecundity. Communal spawning involving C. macromystax and C. agboyiensis occurred. Feeding was carried out throughout the day with higher feeding intensity at night. Food of primary importance were Caridina niloticus, Sudanonautes africanus, Odonata naiad, terrestrial Orthoptera, formicoid Hymenoptera, Dytiscidae, Oreochromis niloticus, Parachanna obscura, fruits and seeds, plant detritus and mud. Diet breadth was season-dependent. The clariid fed by foraging, shoveling and surface feeding. E. clarias, Procamallanus laevichonchus and a larval spiruroid parasitized various organs. C. macromystax is a new host record for these helminth parasites.

Keywords: *Clarias macromystax,* Abundance, Reproduction, Food, Parasites, Anambra river basin, Nigeria.

Animal Research International (2004) 1(3): 200 – 202

SOCIO-ECONOMIC AND WATER CONTACT STUDIES IN *Schistosomiasis haematobium* INFESTED AREA OF ANAMBRA STATE, NIGERIA

EKWUNIFE, Chinyelu Angela
Department of Biology, Nwafor Orizu College of Education, P.M.B 1734, Nsugbe, Anambra State, Nigeria

ABSTRACT

A survey of urinary schistosomiasis in Agulu, Anambra state, Nigeria was carried out using primary school pupils. The relationship between family socio-economic status of the pupils and infection with Schistosoma haematobium and between water contact activities of the people with S. heamatobium was investigated. Seven primary schools out of fifteen in the town had pupils with Schistosoma haematobium infection. Children whose parents were farmers and teachers had infection rates of 38.9% and 14.4% respectively. A greater number of children (7,000) (74.2%) than adults (2,438) (25.8%) perform different activities in different parts of the lake which bring them in contact with the water during the period of study. The highest number of people (3,324) (35.2%) were engaged in swimming while the lowest number 480 (5.1%) were found fishing.

Keywords: Water contact, *Schistosoma haematobium*, Socio-economic

Animal Research International (2004) 1(3): 203 – 207

SCHISTOSOMIASIS INFECTION IN PRIMARY SCHOOLS IN AGULU TOWN OF ANAMBRA STATE, NIGERIA

[1]EKWUNIFE, Chinyelu Angela and [2]OKAFOR, Fabian Chukwuemeka
[1]Department of Biology, Nwafor Orizu College of Education, PMB 1734, Nsugbe, Anambra State, Nigeria
[2]Department of Zoology, University of Nigeria, Nsukka, Nigeria

Corresponding author: Ekwunife, C. A., Department of Biology, Nwafor Orizu College of Education, PMB 1734, Nsugbe, Anambra State, Nigeria

ABSTRACT

Investigation was made to reveal the state and level of Schistosomiasis haematobuim infection in the whole of Agulu town in Anaocha local Government Area of Anambra State, Nigeria where a lake (Agulu lake) is implicated in the transmission of the disease. Urine sample was collected from 3029 children for Schistosoma egg identification. This was used to calculate the level of infection in the different schools. Schistosomiasis prevalence was highest (55.2%) in Umuowelle primary school and lowest (4.1%) in Obeagu primary school. Males had higher infection rate than females in the endemic schools. In Umuowelle, Community and Nneogidi primary schools, infection rates in males were 36.4%, 13.3%, 11.3% respectively while infection rates in females were 25.2%, 11.7% and 6.8% respectively. However, the sex differences were not statistically **significant** ***at 5% confidence level (t-test = 2.179, df = 12). Infection levels investigated in all the schools revealed that the age group 10-14 years recorded the highest level while 0- 4 years had the lowest. There was also shifts in peaks of infection within the various age groups, for instance, in the 10 - 14 years age group of Ifiteani primary school, infection peak was in 14 years while in Nneogidi primary school it was in 13 year old pupils.***

Keywords: Agulu town, Agulu lake, Schistosomiasis, Sex, Age groups

Animal Research International (2004) 1(3): 208 – 211

COMMON LEG ALIMENT OF POULTRY IN PLATEAU STATE, NIGERIA

[1]OGBE, Adamu Okuwa., [1]MUSA, Usman., [1]MOHAMMED, Jibrin Gisilanbe., [1]TUKUR, Rakiya., [1]AHMED, Mohammed Sani and [2]ADENE, Daniel Folorunsho

[1]Federal College of Animal Health and Production Technology, National Veterinary Research Institute, Vom, Jos, Plateau State

[2]Department of Veterinary Medicine, University of Ibadan, Nigeria

Corresponding author: Ogbe, A. O. Federal College of Animal Health and Production Technology, National Veterinary Research Institute, Vom, Jos, Plateau State

ABSTRACT

A study was carried out to investigate the occurrence and causes of leg ailment in poultry through questionnaire survey and farm visitation. Post mortem and laboratory examination were also conducted. The results showed that different species of poultry were affected with various types of leg ailments; out of which local chickens had the highest incidence 175(30.49 %), followed by broilers and commercial laying chickens 153(26.67 %) and least in ostrich 16(6.75 %). Swollen legs were recorded thus: local chickens 65(36.72 %), commercial layer chicken 51(28.81 %) and broilers 33(18.64 %). Incoordination, another common leg ailment were observed in broilers 40(33.33%), layer chickens 39(32.50 %), local chickens 24(20.0 %), and turkeys 4(14.81 %). Physical injuries due to trauma, burns, trampling (smothering) and accidents were recorded in broilers 28(30.77 %), commercial laying chickens 25(27.47 %), local chickens 21(23.08 %), cockerels 17(18.68 %), guinea fowls 15(39.47 %) and ostriches 2(5.26 %). Curled toes, mange, Newcastle disease, Mareks disease and Clostridia infections resulting in leg ailments were also observed.

Keywords: Leg ailments, Poultry, Implication, Plateau State