50 YEARS OF EXISTENCE OF DEPARTMENT OF ANIMAL SCIENCES: THE JOURNEY SO FAR

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INTRODUCTION

The Department of Animal Sciences started as one of the programmes in the General Agriculture Degree Programme awarded by the University of Ife, Faculty of Agriculture in 1962. The Department was formally established in 1966/1967 session. The Faculty of Agriculture operated as unified degree programme from 1962-1977 in which every department made a contribution. Thereafter with the introduction of the Bachelor of Agriculture degree programme, the department graduated its first set of 9 (nine) graduates of B. Agric (Animal Science) in 1981.

The main objectives of the department are to meet the manpower needs and provide knowledge-based solutions to the problems of the agricultural sub-sector and the society at large.

The specific objectives of the department include:

(a) To prepare young professionals for careers in Animal Science and to instill in them, life-long habits of dedication, leadership, innovation and service.

(b) To conduct strategic research (basic and applied) in Animal Science so as to meet the national challenge of food security and improved welfare.

(c) To help to develop national livestock policies that will foster a sustainable, environment friendly, prosperous agricultural sector and national economic development.

(d) To create public awareness of development in the agriculture and food industry-vis-à-vis quality and safety of animal products.

(e) To assist with rural development through direct collaboration with small holder livestock units so as to promote employment, income generation and development of skills.

ACADEMIC PROGRAMMES

(a) **Undergraduate:** The Department of Animal Science runs a Bachelor of Agriculture (B. Agric. Animal Science) programme. Essentially, the programme emphasises practical (field and laboratory) training in all

aspects of Animal Science. The first 4 years of the programme are devoted to the exposure of students in the B. Agric programme to all aspects of Agriculture, including a full year internship during the 4th year.

Students take courses from Departments of Agricultural Economics, Crop Production and Protection, Soil and Land Management, Agricultural Extension and Rural Sociology, Agricultural Engineering and Practical Land Survey from Civil Engineering. Overall, the training is geared towards preparing the students for future challenges in the agricultural sector.

Currently, the undergraduate programme has been revised in line with the global trends and recent developments in Animal Production. Current changes in the programme emphasize all aspects of Animal Biotechnology in the improvement of livestock productivity. The new programme also includes practical knowledge about fisheries and fish production, feed formulation etc. The name of the Department has also been changed to the "Department of Animal Sciences" to reflect the changes in the curricular cited above.

(b) **Postgraduate Programme:** The postgraduate programme emphasizes sound training in specialized areas of Animal Science, including Animal Breeding and Genetics, Animal Nutrition and Biochemistry, Animal Health, Reproductive Physiology, Animal Products and Processing and Animal Biotechnology, Currently, there are 34 duly registered postgraduate students in the Department.

RESEARCH AND DEVELOPMENT

Major research contributions in each sub-discipline in Animal Science are as follows:

(a) **Animal Nutrition and Management**

1. The use of discarded cocoa husks for livestock feeding- Adegbola, Omole, Ilori, Adeyanju and Smith
2. The use of Agro-industrial by-products such as Brewers dried grain, Palm Kernel meal and blood meal in livestock nutrition – Adegbola, Ademosun, Ilori, Aderibigbe and Onwudike.
3. The establishment of base-line nutrient requirements of livestock in Nigeria – Ademosun, Matanmi, Ilori, Omole, Sonaiya, Onwudike.
4. Cassava and cassava plant meal (unpeeled tubers+leavea +tender stems) as a replacement for cereals in livestock feeding – Omole, Adeyanju, Sonaiya, Aderibigbe, Matanmi and Akinfala.
5. Development of Management System for WAD Goats under tropical humid environment – Ademosun, Ayeni, Smith and Odeyinka.
6. Most cost efficient ration formulations with unconventional foodstuffs – Omole, Aderibigbe, Sonaiya, Onwudike, Matanmi, Odeyinka, Aki a.
7. The e of Leucaena Leucocephala and Gliricidia Sepium as livestock feed – Ademosun, Smith, Odeyinka.
8. The use of household wastes as livestock feed – Sonaiya, Odeyinka.
9. Livestock feeding behaviour – Daniyan, Matanmi, Sonaiya, Odeyinka
10. The use of mixture of blood meal and rumen digesta in the diets of Poultry and Swine----Sonaiya, Matanmi, Akinfala and Makinde.

(b) **Animal Breeding and Genetics**

1. Production characteristics and genetic improvement of production traits of indigenous livestock – Akinokun, Odubote, Oseni, Adeogun.
2. Genetic evaluation of rabbit genotypes for fertility, prolificacy and production traits – Akinokun, Odubote, Oseni.

3. Evaluation of Nigeria chicken ecotypes for production traits – Sonaiya, Odubote.
4. Genetic evaluation of indigenous cattle species – Akinokun.

(c) **Animal Health**

1. Occurrence, diagnosis and treatment of different diseases of livestock and practical control methods – Ayeni, Olubunmi.
2. Development of an improved health management package for modern rearing of goats in humid tropics – Olubunmi, Ayeni and Smith.
3. Efficacy of local herbs in the treatments of animal diseases – Oyebanji.

(d) **Reproductive Physiology**

Reproductive efficiency and vital reproductive statistics of indigenous livestock species – Chiboka, Somade, Daniyan, Ola.

(e) **Small-holder Livestock Production Units**

Livestock production in the rural areas for improved family nutrition and income generation-Sonaiya, Matanmi, Daniyan and Ajuwon.

(f) **Animal Biotechnology**

1. Genotyping of Indigenous and commercial livestock and fish breeds in SouthWestern Nigeria---------- Omitogun
2. Cryopreservation of African catfish sperm ---------- Omitogun
3. Gene manipulation in African catfish by gynogenesis, androgenesis and triploidy---------- Omitogun
4. Comprehensive molecules' genetic characterization among West Africa and Brazil adapted poultry breeds, creation of a bank for germplasm exchange-------- Omitogun
5. Economic imprinting in the bovine genoma---------- Omitogun

SOME OF THE CONTRIBUTIONS TO KNOWLEDGE IN PRACTICAL ANIMAL PRODUCTION

I. Indigenous species of animals have intrinsic genetic values for adaptability and production in our environment. For example, it has been found that under improved management, our indigenous chicken show comparable productivity in terms of rate of egg production and growth rate as reported by Akinokun, Sonaiya, in separate studies.

ii. Animal nutrition studies revealed that the nutrient requirements for animals under humid tropical conditions differ markedly from those for temperate conditions.(Adegbola and Ademosun).

iii. It has been found that the cholesterol levels in the indigenous chicken eggs are lower than the amount recorded in eggs laid by exotic chickens. (Sonaiya and Matanmi)

iv. It has been found that some agro industrial by-products such as Palm kernel meal, Brewer's dried grains can be used as subsititutes for grain diets, with no adverse effect on production. This results in cheaper rations for livestock. (Sonaiya, Adegbola, Smith and Akinfala).

v. Comparative studies on the productivity levels of indigenous and exotic livestock (pigs, cattle, etc) have indicated the promotion of use of indigenous stock on account of high adaptability and sustainability especially under small-holder units. (Akinokun and Ilori).

vi. *Leucaena leucocephala* and *Gliricidia sepium* can be safely offered to WAD goats up to 50% of their diets without the problems of Mimosine toxicity. Rabbits can tolerate up to 100g Leucacena in their diets in addition to pelleted concentrate. (Ademosun and Odeyinka).

vii. Moringa oleifera can be safely offered to Wad goats and rabbits. (Odeyinka and Odedire).

viii. Many unconventional feedstuffs could be incorporated into the diets of livestock as sources of nutrients for farm animals, for example;

(a) Winged bean pods can be incorporated in the diets of growing sheep at 60% and efficiently utilized as source of crude fiber, minerals and fat. (Aderibigbe)

(b) Water hyacinth and water lettuce hays could be incorporated into the diets of growing sheep at 30% and efficiently utilized as sources of protein and minerals.

(c) Cassava plant meal (cassava peels, cassava tuber, cassava tender leaves and tender stems) can be used as a basal diet for pigs and rabbits without any adverse effect on the performance of the animals. (Aderibigbe, Matanmi andAkinfala)

(ix) Management and Feeding packages for these livestock animals such as poultry, pigs, rabbits, sheep and goats have been developed in the department through various research investigations which were sponsored by the university as well as National and International Agencies. These technologies have been transferred to the end users e.g. farmers, feed millers, various institutions and policy makers within the country and by other scientists overseas (Adegbola, Ademosun, Omole, Ilori, Sonaiya, Aderibigbe.

The Department is currently the nucleus center for the development of biotechnology in the University. At present, the biotechnology center in the department is developing tools to study, characterize and preserve animal genetic diversity in Osun State. The characterization effort will provide baseline information on the location of genes for economically important traits such as fertility, survival, growth and resistance to diseases.

SUB-DISCIPLINES WITHIN THE DEPARTMENT

1. **Animal Breeding and Genetics:**

Animal Breeding and Genetics is primarily concerned with the development and implementation of genetic evaluations in rabbits, poultry, small ruminants (sheep and goats) and beef cattle. Previous researches have focused mainly on production characteristics and genetic evaluation of indigenous livestock species- swine, chicken, beef cattle and small ruminants. Professors Akinokun, Sonaiya and Drs. Odubote and Oseni and Dr. (Mrs) Dudusola have conducted studies on these livestock species.

2. **Animal Nutrition and Biochemistry**

Involves the testing and evaluation of locally available feed resources, the works focused on finding alternative feed resources for chickens, rabbits and swine, on account of the high costs of concentrate-based diets. Other studies also examined the effect of varied crude protein levels on growth and reproductive performance of rabbits. In small ruminants, studies were conducted on the effects of browse supplementation on growth and reproductive performance. Browses tested included Gliricidia sepium and Leucaena leucocephala, Moringa oleifera. Ademosun, Smith, Ayeni, Aderibigbe, Odeyinka Matanmi, Akinfala Fatufe and Odedire have conducted studies in this area.

3. **Animal Health:**

Involves monitoring, diagnosis and treatments of livestock diseases. Research efforts have focused on the efficacy of local herbs in the treatment of animals disease - Olubunmi, Oyebanji championed studies in this area.

4. **Animal products and processing:**

Involved studies on improving the quality, shelf-life and acceptability of animal products-meat, milk, eggs and other products derived from these. Professor Sonaiya conducted studies.

5. **Animal reproduction:**
Research efforts in animal Reproductive Physiology have focused mainly on improving efficiency of reproduction of sheep, goats, rabbits, grasscutters and African Giant snail. Previous research covered semen evaluation, accelerated lambing and nutrition and environmental effects on reproduction. Chiboka, Somade, Daniyan and Ola conducted studies in these areas.

6. **Animal Biotechnology:**
Holds huge potentials in the improvements of livestock productivity through the manipulations of the DNA. The Department of Animal Science has a Biotechnology Laboratory set-up through a one million naira research grant from the University Research Committee. The department is involved in identifying research and priority options for the applications of biotechnology in the livestock sector. These studies are coordinated by Professor. (Mrs.) Omitogun one of the current studies is the genotyping of commercial and indigenous livestock and fish breeds in Osun State and cryopreservation of the sperm of African catfish being conducted by Prof. (Mrs.) Omitogun.

Current Research in Animal Biotechnology:
"Genotyping of Commercial and Indigenous Pig and Fish Breeds in farms in Osun State for the Control and Monitoring of their Genetic quality."

This is a pioneering project that aims to develop molecular biology and biotechnology research tools that can be applied not only to animals, but also to plants and humans for chromosomal abnormalities and disease diagnosis. From the time the project was executed January 2004, it has made significant accomplishments. The following research goals were' accomplished as of date:

1. Setting up of a biotechnology laboratory in the Faculty of Agriculture where a former laboratory in the Department of Animal Science was repaired, remodeled and refurbished. A water tank was also installed on the rooftop of the Faculty above this laboratory providing a 24-hour uninterrupted supply of water.
2. An electrophoretic apparatus was purchased through the URC-funded grant. Other apparatus repaired were an incubator, a vacuum pump, and a generator along with two air-conditioners that were prerequisites to the maintenance of the integrity of the chemicals and reagents as well as the equipment inside the laboratory. A brand new freezer and refrigerator were also acquired to store feed ingredients, blood samples from fish and pigs, buffers and drugs, disinfectants. The department has also placed in this laboratory a pH meter, spectrophotometer, 2 microscopes and 2 top-loading balances.
3. A sterile tissue culture facility was also set up in a small room within this laboratory. A laminar flow hood was donated by the Central Science Laboratory of Obafemi Awolowo University, Ile-Ife which is currently being used for culture of livestock blood for chromosome studies, avian embryos and fish pituitary gland cells.
4. Chemicals for cytogenetics and electrophoresis were also acquired. Two research techniques are now being done in routine in this biotechnology laboratory: protein electrophoresis of serum proteins of pig and fish, chromosome preparation from cultured lymphocytes of indigenous pigs.
5. At the Swine Unit of the Teaching and Research Farm, several indigenous pigs and exotic Large White breeds are currently being raised for regular supply of blood and hair for chromosome and DNA analyses. A fishpond in the Fisheries Unit was also repaired and restocked with Clarias fish for supply of blood for serum

protein electrophoretic analyses. Blood samples are now stored in the deep freezer. Some fish were decapitated for pituitary gland excision for use in induced spawning of Clarias.

6. The laboratory is also serving as a teaching laboratory in genetics and molecular biology for Part V and postgraduate courses such as ANS 503 (Animal Breeding), ANS 510 (Applied Animal Breeding), ANS 515 (Animal Biotechnology), ANS 614 (Genetics improvement of livestock), ANS 616 (Advances in Fish Production), ANS 618 (Agricultural Biotechnology) and ANS 621 (Endocrinology), ANS 625 (Fish breeding and Hatchery Management).

With these accomplishments, it is hoped that the University would sensitize the National Universities Commission (NUC) to give substantial support to this project that could serve as an incubator for a future Molecular Biology and Biotechnology Centre or Biotechnology Resources Centre in Obafemi Awolowo University.

LINKAGES:

The department has major collaborative research studies with national and International agencies such as

1. Presidential Task Force on alternative feed formulation for Chickens, Rabbits and Swine - Omole, Sonaiya.
2. National Agricultural Research Projects (NARP) - a World Bank Sponsored project – Aderibigbe.
3. The International foundation for Science (IFS) – Sonaiya, Smith, Oseni and Ola.
4. Alexander von Humboldt foundation – Sonaiya
5. Agricultural University, Wageningen, The Netherlands – OAU project on Goat Production Systems in the humid tropics – Ademosun.
6. Ram fattening project between the Department and Osun State Government, Odeyinka and Odedire.
7. International Livestock Research Institute, Kenya ---- Omitogun
8. International Institute of Tropical Agriculture --- Omitogun
9. EMBRAPA Brasiliai (Brasilian Research Corporation).---- Omitogun
10. NACGRAB (National Center for Genetic Resources and Biotechnology, Moor Plantation, Ibadan, Nigeria)---- Omitogun
11. Cornell University, U.S.A.----- Omitogun
12. Memoranda of Understanding (MoU) involving Obafemi Awolowo University, Ile-Ife, and several international agencies including: (i) International Foundation for Science (Stockholm, Sweden); (ii) Global START (Washington, DC, USA) and (iii) DelPHE Study funded by the British Council / DFID (United Kingdom)----- Oseni
13. The Academy of Sciences for the Developing World, Chinese Ministry of Science and Technology--- Ola and Fatufe

Members of staff of the department are registered members of national & international professional association including the Nigerian Society for Animal Production, Small Ruminant Research Networks, Animal Science Association of Nigeria, British Society of Animal Science, America Society of Animal Science, America Diary Science Association, etc. Members also strive to attend Annual Meetings regularly.

SERVICES

Locally, academic members of staff are involved with the day-do-day running of the entire University system through students' registration and advisory, numerous committee meetings to process students results, staff evaluation, etc. At the national level, a member of the academic staff championed the identification and development of Animal Biotechnology potentials for Nigeria.

STAFF STRENGH
ACADEMIC STAFF OF THE DEPARTMENT

S/No	Name	Degrees	Status	Areas of Specialization
1.	E.O. Akinfala	B.Agric. Tech. (Akure), M.Sc., Ph.D. (UI)	Senior Lecturer	Biochemistry and Nutrition
2.	E. B. Sonaiya	B.Sc., M.Phil. (Ife), Ph.D. (Cornell)	Professor	Meat and Muscle Biology
3	A.O. Aderibigbe	B.Sc. (Calif.)M.Sc., Ph.D. (Oregon)	Professor	Comparative Animal Nutrition
4	O.G. Omitogun	B.Sc., M.Sc.(Philippines), Ph.D. (France)	Professor	Animal Genetics/ Aquaculture Biotechnology
5	S.M. Odeyinka	B.Agric, Ph.D. (Ife)	Professor	Ruminant Nutrition
6	O. Matanmi	B.Sc. (Ibadan) M.Phil. Ph.D. (Ife)	Professor	Non-Ruminant Nutrition
7	S.O. Oseni	B. Agric., MPhil. (Ife), Ph.D. (Georgia)	Senior Lecturer	Animal Breeding and Genetics
8	S.I. Ola	B.Sc. Agric (UI), M.Sc. Animal Science (Ife), Ph.D. (UI)	Senior Lecturer	Reproductive Physiology
9	I.A. Dudusola	B. Agric. Tech (ATBU), M.Sc. (ATBU), Ph.D. (OAU)	Senior Lecturer	Animal Breeding and Genetics
10	A.A. Fatufe	B.Sc., M. Sc. (UI), Ph.D. (Germany)	Senior Lecturer	Nutrition/Biotechnology
11	J.A. Odedire	B. Tech., (LAUTECH) M.Sc., Ph.D (UI).	Senior Lecturer	Animal Ecology
12	B.O. Oyebanji	D.V.M.,M.Sc. M.Tech , Ph.D(UI)	Lecturer I	Animal Health
13	A. O. Makinde	B.Sc,M.Sc.Ph.D	Lecturer I	Animal Products/Nutrition
14	O. C. Betiku	B. Agric,M.Sc	Lecturer II	Fish Nutrition

TECHNICAL STAFF (Senior)

S/No	Name	Degrees	Status	Areas of Specialization
1	J. O. Adedeji	OND (Agric.)	Chief Agric Superintendent	Animal Products/Nutrition
2	E. K. Ogunyemi	HND (Science Tech.) A.I.S.T	Senior Technologist	Lab. Technology
3	Adeyosoye Olusoji I.	Higher National Diploma (HND)	Technologist 1	Microbiology/Biological Techniques
4	M. A. Lasisi	HND (Animal Production) Dip. In Computestudies Cert. in A.Iin Cattle	Agricultural Superintendent	Animal Products/Nutrition
5	O. Babatunde	WAEC, NIST (INT)	Lab. Supervisor	Lab. Technician
6	Tom Udoh	WAEC	Lab Supervisor	Lab. Technician

ADMINISTRATIVE STAFF (Senior)

S/No	Name	Degrees	Status	Areas of Specialization
1	J.O. Onabowale	RSA School Cert., GCE O'L.Pitman 35wpm, Auchi Poly 5Owpm, OAU lle Ife Computer EDP.	Chief Secretarial Assistant Officer	Registry/secretariat
2	J. O. Oyeniran	Primary Six Certificate Mod. Three Certificate GCE.O/L 1987	Chief Clerical Officer	Registry/secretariat

TECHNICAL STAFF (Junior)

S/No	Name	Degrees	Status	Areas of Specialization
1	H. O. Adegbaye	Trade Test I, II, III, Diploma	Senior Craftman	Lab.Technician
2	Bola Adewumi	Trade Test I, II, III,	Chief Attendant	Farm Superintendent

ADMINISTRATIVE STAFF (Junior)

S/No	Name	Degrees	Status	Areas of Specialization
1.	John Sunday	Primary Six	Principal office Assistant	Registry/secretariat
2.	I. O. Odugun	NECO/SSCE, WAEC, O.G.T. EDE Poly 35/W.A.M, O.A.U/OGT 50W.P.M., PROSPECT SCH. OF SEC/COMP., TESTIMONIAL	Secretarial Assistant lll	Registry

STUDENTS NUMBERS

(a) Postgraduate = 34
(b) Undergraduate = 332
Others = Nil

Total enrolment = 366 students as at 2011/2012 session.

FACILITIES AVAILABLE IN THE DEPARTMENT

1. Pentium Computers
2. Hp Deskjet 920c printer
3. Laboratory facilities for proximate analysis
4. Both water either
5. Polarimeter, pH meter, Balance analytical, furnace appliances, oven, microtracer etc,
6. Microplate reader, CO_2 incubator, Photographic light microscope and Haematocrit centrifuge.

ACHIEVEMENTS OF THE DEPARTMENT

Over the years, the department has produced high quality graduates who currently hold eminent positions nationally and internationally. Graduate products of the department have occupied positions such as Vice-Chancellors of Universities and Deans of Faculties in Nigerian Universities, top-notch entrepreneurs in business and private sectors, (e.g. Avian Specialities Farm and Obasanjo Farms). Internationally, graduates of the department currently hold faculty positions in the USA, Canada, United Kingdom and all over the world.

PLANS FOR FUTURE DEVELOPMENT

The future plans of the Department are harmonious with the overall goals of the University, which are:

1. To contribute to the production of high quality employable graduates that will meet the requirements of the nation.
2. To encourage and promote applied research geared towards finding solutions to problems of the livestock industries.
3. To harness, adapt and adopt modern technological developments to meet the institution's needs as well as the nation's socio-cultural and technical needs.

PUBLICATIONS IN THE LAST FIVE YEARS

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