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40 YEARS OF EXISTENCE OF DEPARTMENT OF ANIMAL SCIENCE: THE JOURNEY SO FAR

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INTRODUCTION

The Department of Animal Science 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 and 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 smallholder 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 emphasizes practical (field and laboratory) training in all aspects of Animal Science. The first 4 years of the programme is 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, Plant, Soil, 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.

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Currently, the undergraduate programme is being 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 is also being changed to the "Department of Animal Production and Fisheries" 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 19 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 as a replacement for cereals in livestock feeding – Omole, Adeyanju, Sonaiya, Aderibigbe and Akinfala.
5. Development of Management System for WAD Goats under tropical humid environment – Ademosun, Ayeni, Smith and Odeyinka.
6. Least cost efficient ration formulations with unconventional foodstuffs – Omole, Aderibigbe, Sonaiya, Onwudike, Matanmi, Odeyinka, Akinfala.
7. The use 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 behavior – Daniyan, Matanmi, Sonaiya, Odeyinka.

(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 diseases 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 diseases – Olubunmi.

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

Genotyping of commercial and indigenous livestock and fish breeds – Omitogun, Sonaiya.

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 andAdemosun)

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

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

v. Comparative studies on the productivity levels of indigenous and exotic livestock (pigs, cattle, etc) have indicated the promotion of the use of indigenous stock on account of high adaptability and sustainability, especially under smallholder 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 Mirnosine toxicity. Rabbits can tolerate up to 100g Leucacena in their diets in addition to pelleted concentrate. (Ademosun and Odeyinka)

vii. 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) Whole cassava plant (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. (Akinfala)

(viii) 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 & 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, chickens, beef cattle and small ruminants. Professors Akinokun, Sonaiya and Drs. O dubote and Oseni and Miss Adeogunhave conducted studies on these livestock species.

2. Animal Nutrition and Biochemistry Involves the testing and evaluation of locally available feed resources for livestock. Previous research 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 a 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*. Ademosun, Smith, Ayeni, Aderibigbe and Odeyinka 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 treatments of diseases of Swine and small ruminants – Professor Ayeni and Dr. Olubunmi 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 and rabbits. 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 by a one million naira grant from the University Research Council. The Department is involved in identifying research and priority options for the applications of biotechnology in the livestock sector. These studies are funded by the USAID and coordinated by Professor Sonaiya and Dr (Mrs) Omitogun One of the current studies is the genotyping of commercial and indigenous livestock and fish breeds in Osun State being conducted by Dr. (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 approved on November 28, 2002, and executed only after the release of first cash advance in January 2004, the project has made significant accomplishments. Despite a year's delay in the release of the budget for the project 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 to become a modern biotechnology laboratory. 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 that was donated to the Principal Investigator by her research supervisor from Israel was repaired by the Department's Chief Technician. Other apparatus repaired were an incubator, a vacuum pump, and a power supply 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, etc. 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. An improvised culture chamber using an old glass aquarium was used as a manipulating chamber sterilized using a 15-watt ultra violet lamp and fumigation with 37% formalin.
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, 5 indigenous pigs and 5 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 614 (Genetics of Poultry and Small Mammals), ANS 618 (Radiotracer Techniques and Agricultural Biotechnology) and ANS 621 (Endocrinology).

With these accomplishments, it is hoped that URC 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 had 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.
4. Alexander van Humboldt foundation - Sonaiya
5. Agricultural University, Wageningen, The Netherlands – OAU project on Goat Production Systems in the humid tropics - Ademosun.

Members of staff of the Department are registered members of national & international professional association including the Nigeria Society for Animal Production, Small Ruminant Research Networks, Animal Science Association of Nigeria, America Society of Animal Science, American Dairy Science Association, etc. Members also strive to attend annual meetings regularly.

SERVICES

Locally, academic members of staff are involved with the day-to-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 is championing the identification and development of Animal Biotechnology potentials for Nigeria. through his current leave of absence at the International Livestock Research Centre, ILRI. Ibadan.

At the international level, Professor Sonaiya is the coordinator of the International Network for Family Poultry Development a group that applies research results in the improvement of family income and welfare through rural poultry production.

STAFF STRENGTH
ACADEMIC STAFF OF THE DEPARTMENT

Name	Degrees	Status	Areas of Specialization
I.O. Ilori	B.Sc. (Ife) Ph.D. (Purdue)	Professor	Animal Nutrition
J.O. Akinokun	B.Sc., M.Sc., (Kansas State), Ph.D. (Ibadan)	Professor	Animal Breeding and Genetics
E.B. Sonaiya	B.Sc., M.Phil. (Ife), Ph.D. (Cornell)	Professor	Meat and Muscle Biology
A.O. Aderibigbe	B.Sc. (Calif.) M.Sc., Ph.D. (Oregon)	Professor	Ruminant Nutrition
P.A. Olubunmi	D.V.M. (Ibadan), Ph.D. (Glasgow)	Reader	Microbiology and Animal Health
O.O. Omitogun	B.Sc.,M.Sc.(Philippines), Ph.D. (France)	Reader	Animal Genetics/Biotechnology
O. Matanmi	B.Sc. (Ibadan) M.Phil. Ph.D. (Ife)	Senior Lecturer	Non-Ruminant Nutrition
S.M. Odeyinka	B.Agric, Ph.D. (Ife)	Senior Lecturer	Ruminant Nutrition
E.O. Akinfala	B.Agric Tech. (Akure), M.Sc., Ph.D. (Ibadan)	Lecturer I	Biochemistry and Nutrition
S.O. Oseni	B. Agric., M.Phil (Ife), Ph.D. (Georgia)	Lecturer I	Animal Breeding and Genetics
K.M. Ajuwon	B. Agric., M.Sc. (Ife).	Assistant Lecturer	Biochemistry and Nutrition
S.I. Ola	B.Sc. Agric (Ibadan), M.Sc. Animal Science (Ife)	Lecturer II	Reproductive Physiology
I.A. Adeogun	B. Agric. Tech (ATBU), M.Sc. (ATBU)	Lecturer II	Animal Breeding and Genetics

TECHNICAL STAFF (Senior)

1.	Mr. S.A. Adisa	WASC, GCE, OND (C&G Lond), HND (C&G Lond)	Chief Technologist
2.	Mr. R.O. Omoseibi	WASC, OND (Animal Health), HND (Animal Health), Prof. Cert. In Poultry (Belg)	Chief Technologist
3.	Mr. J.O. Adedeji	GCE, WASC, OD (Agric), NHD (Agric), Dip. In Pig Husbandry	Principal Agric. Superintendent.
4.	Mrs. M.A. Orenuga	WASC, ONC (Lond), AMILT	Senior Technologist
5.	Mr. E.K. Ogunyemi	WAEC, OND (Science Tech) HCS (Lab. Tech)	Technologist II
6.	Mr. F.A.O. Fatukasi	Trade Test I, II, III	Senior Workshop Supervisor
ADMINISTRATIVE STAFF (Senior)			
1.	Mrs. G. Vidal	Mod. Sch. Cert., Laney, Comm. Coll. (USA), Webster Coll. For Secretary (Calif. USA)	Principal Confidential Secretary
2.	Mr. R.O. Ilesanmi	Sec. Comm. Cert., GCE 'OL. 1980/81, Dip. IBM. Operator	Chief Typist
3.	Mr. J.O. Ilesanmi	Comm. IV School. Cert., Pitman Advanced Level, Cert. In Computer (OAU, Ife)	Chief Typist

TECHNICAL STAFF (Junior)

1.	Mr. Tom. Udoh	Lab. Supervisor
2.	Mrs. A. Borode	Lab. Supervisor
3.	Mr. A. Babatunde	Snr. Lab. Assistant
4.	Mr. H. O. Adegbaye	Asst. Craft Man

ADMINISTRATIVE STAFF (Junior)

1.	Mrs. V. B. Adefila	Snr. Clerical Officer
2.	Mr. R. O. Akinfolarin	Snr. Messenger

STUDENT NUMBERS

(a)	Postgraduate	=	19
(b)	Undergraduate	=	164
	Others	=	Nil

Total enrolment = 183 students as at 2002/2003 session.

FACILITIES AVAILABLE IN THE DEPARTMENT

1. Pentium Computers.
2. Hp DeskJet 920c printer.
3. Laboratory facilities for proximate analysis.
4. Bath water ether
5. Polarimeter, pH meter, Balance analytical, furnace appliances, oven chromatography crude fibre apparatus lab. compressor, oven, etc. etc.
   All the above facilities are either broken down or in poor conditions.

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 Specialties Farms 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 continue to produce 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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2. Adedokun, S.A.; Sonaiya, E.B. 2002. Comparing Nigeria Indigenous with Dahlem Red chickens for improved productivity and adaptability. *Archiv fuer Tierzucht, 45(3): 297-306.*
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