



**FEDERAL UNIVERSITY OF TECHNOLOGY
MINNA**

**TOWARDS ADEQUATE
ANIMAL PROTEIN INTAKE
BY THE YEAR 2020**

By
DEAN
Sch. of Sci. & Tech. Education
Federal University of Technology
Minna

THEOPHILUS ZUBAIRU ADAMA

B.Sc., M.Sc. (ABU), DEA., PhD (USTL France)
Professor of Animal Production and
Deputy Vice-Chancellor (Academic)

INAUGURAL LECTURE SERIES 11

24TH APRIL, 2008



**FEDERAL UNIVERSITY OF TECHNOLOGY
MINNA**

**TOWARDS ADEQUATE
ANIMAL PROTEIN INTAKE
BY THE YEAR 2020**

By

THEOPHILUS ZUBAIRU ADAMA

B.Sc., M.Sc. (ABU), DEA., PhD (USTL France)

Professor of Animal Production and

Deputy Vice-Chancellor (Academic)

DEAN
Sch. of Sol. & Tech. Education
Federal University of Technology
Minna

INAUGURAL LECTURE SERIES 11

24TH APRIL, 2008



1.0 INTRODUCTION

Today, I am highly privileged to present to this distinguished audience my inaugural lecture in my chosen profession of Animal Science. I have chosen the theme "**Towards Adequate Animal Protein Intake by the Year 2020**" because of the present low level of animal protein intake in most developing countries, including Nigeria. For any nation to develop, the citizens must be well fed with a balance diet. In this direction, the contribution of livestock to the diet is very crucial. Developing countries are presently consuming far less than the recommended daily animal protein. This development apart from impacting negatively on the health of the citizenry, is also retarding the much desired economic growth. In order to catch up with the developed countries, many developing countries are setting up development targets. Here in Niger State of Nigeria, the Chief Servant, Dr. Muazu Babangida Aliyu has vowed to transform the state into one of the top three economies in the country by the year 2020. This transformation I believe should include the livestock sub-sector.

Livestock can make a major contribution to the efficient use of available natural resources. Livestock production constitutes a very important component of the agricultural economy of both developed and developing countries. First and foremost, animals are important source of high quality protein, minerals, vitamins and micronutrients. The value of dietary animal protein is in excess of its proportion in diets because it contains essential amino acids that are deficient in cereals. Increased consumption of even small additional amounts of meat and milk can provide the same level of nutrients, protein, and calories to the poor that a large and diverse amount of vegetables and cereals could provide. Eating even a small amount of animal products corrects amino acid deficiencies in cereal-based human diets, permitting more of the total protein to be utilised because animal proteins are more digestible and metabolised more efficiently than plant proteins. Foods derived from animal sources have major importance for optimizing human performance in chronically mild to moderately malnourished populations. This is especially important for young children.

The contribution of livestock sector goes beyond being a direct source of food even though official statistics tend to underestimate the overall contribution of animals since they generally underestimate or ignore the multipurpose role livestock play in agricultural production, as well as in the social life of small-scale farmers in developing countries. Livestock are closely linked to the social and cultural lives of several million resource-poor farmers for whom animal ownership ensures varying degrees of sustainable farming and economic stability. In mixed-farming systems, not only can farmers mitigate risks by producing a multitude of commodities, but they can also increase the productivity of both crops and animals in a more profitable and sustainable way. Animals are important sources of products such as skin, fibre,

fertilizer and fuel, as well as capital accumulation.

In view of the rapid increase in the level of animal protein intake in many parts of the developing countries, it has become evident that a **Livestock Revolution** is currently taking place (Delgado, Courbois, and Rosegrant, 1998; Delgado, Rosegrant, Steinfeld, Ehui and Courbois 1999; Delgado, Rosegrant and Meyer, 2001). Such a rapid increase is creating new opportunities for livestock producers in developing countries, where some of the world's poorest people live. The increase in livestock food products also holds promise for relieving widespread micronutrient and protein malnutrition, while making positive contributions to the sustainable intensification of smallholder agriculture.

Unlike the supply-led Green Revolution, the **Livestock Revolution** is driven by demand. From the early 1970s to the mid-1990s, the volume of meat consumed in developing countries grew almost three times as much as it did in the developed countries. The demand-driven **Livestock Revolution** is one of the largest structural shifts to ever affect food markets in developing countries and how it is handled is crucial for future growth prospects in developing countries' agriculture for food security, the livelihoods of the rural poor, and for environmental sustainability.

This lecture will give a profile of the livestock industry, its important contribution to man, the present poor state of animal protein intake in the developing countries, particularly in Nigeria and strategies for ensuring adequate animal protein intake by the year 2020. It will also highlight some of my research focus and contributions in the field of animal production and proffer some suggestions that will move the livestock industry forward, particularly in Nigeria.

2.0 ANIMAL SCIENCE AS A PROFESSION

The process of domestication brought animals under the control of man. Domesticated animals are constantly supposed to be under the care of man who domesticated them to serve his needs. For domestic animals to produce effectively and meet the needs of their human masters, man ought to meet the needs of the animals. These include provision of feed, health care, security and protection against adverse climatic conditions and thieves and predators. It amounts to cruelty, exploitation and neglect for owners of animals to abandon their animals and allow these animals to fend for themselves. A typical herdsman will do everything possible to meet the needs of his animals.

Animal Science is concerned with the science and business of producing domestic livestock species, including but not limited to beef cattle, dairy cattle, horses, poultry, sheep, and swine. An animal scientist applies the principles of biological, physical, and social sciences to the problems associated with livestock production and



fertilizer and fuel, as well as capital accumulation.

In view of the rapid increase in the level of animal protein intake in many parts of the developing countries, it has become evident that a **Livestock Revolution** is currently taking place (Delgado, Courbois, and Rosegrant, 1998; Delgado, Rosegrant, Steinfeld, Ehui and Courbois 1999; Delgado, Rosegrant and Meyer, 2001). Such a rapid increase is creating new opportunities for livestock producers in developing countries, where some of the world's poorest people live. The increase in livestock food products also holds promise for relieving widespread micronutrient and protein malnutrition, while making positive contributions to the sustainable intensification of smallholder agriculture.

Unlike the supply-led Green Revolution, the **Livestock Revolution** is driven by demand. From the early 1970s to the mid-1990s, the volume of meat consumed in developing countries grew almost three times as much as it did in the developed countries. The demand-driven **Livestock Revolution** is one of the largest structural shifts to ever affect food markets in developing countries and how it is handled is crucial for future growth prospects in developing countries' agriculture for food security, the livelihoods of the rural poor, and for environmental sustainability.

This lecture will give a profile of the livestock industry, its important contribution to man, the present poor state of animal protein intake in the developing countries, particularly in Nigeria and strategies for ensuring adequate animal protein intake by the year 2020. It will also highlight some of my research focus and contributions in the field of animal production and proffer some suggestions that will move the livestock industry forward, particularly in Nigeria.

2.0 ANIMAL SCIENCE AS A PROFESSION

The process of domestication brought animals under the control of man. Domesticated animals are constantly supposed to be under the care of man who domesticated them to serve his needs. For domestic animals to produce effectively and meet the needs of their human masters, man ought to meet the needs of the animals. These include provision of feed, health care, security and protection against adverse climatic conditions and thieves and predators. It amounts to cruelty, exploitation and neglect for owners of animals to abandon their animals and allow these animals to fend for themselves. A typical herdsman will do everything possible to meet the needs of his animals.

Animal Science is concerned with the science and business of producing domestic livestock species, including but not limited to beef cattle, dairy cattle, horses, poultry, sheep, and swine. An animal scientist applies the principles of biological, physical, and social sciences to the problems associated with livestock production and

management. Animal Science is also concerned with foods of animal origin: meat, dairy foods, and eggs. In addition, animal science is concerned with efficient production of food animals, processing and consumption of high-quality meats and dairy products as well as the general well-being of animals.

Professional education and training in Animal Sciences provide challenging career opportunities in such areas as breeding, health maintenance and disease control, marketing, processing, distribution, and numerous allied service industries. Animal scientists must have formal training and appropriate experience to learn and apply the complex principles involved in animal science, care, and use. Knowledge of such basic subjects as animal behaviour and management, genetics, microbiology, nutrition, physiology, reproduction, and meat science is essential to persons entering most animal science professions.

Students enrolled in animal sciences curricula receive a firm background in the biological and natural sciences. This foundation is essential for understanding the principles of animal breeding, reproductive physiology, nutrition, meats and muscle biology, growth and mammary physiology, genetic engineering, molecular biology, and management of livestock and companion animals. Students can also gain expertise in the processing, quality control, product development, and marketing of meat, dairy, and poultry products.

Programmes of study in animal science are designed to give students a broad knowledge of animal and poultry production as well as the application of modern technology within agricultural systems. Programmes may emphasise: sustainable production systems and management, animal behaviour and welfare, physiology, biotechnology (e.g. growth, meat quality, immune system modulation), genetics, molecular genetics, computer modeling, nutrition (biochemistry, feeds and feeding evaluation), pasture management and forage production.

A career in Animal Science can make one to be part of the biggest industry in the world! The international trade of livestock products is valued at US\$200 billion. (Slingenbergh, Hendrickx and Wint, 2002). According to McCalla and de Haan (1998), about 150 million tonnes, or about one third of internationally traded agricultural commodities are livestock products or livestock feed. U.S. agriculture alone is a \$135 billion business, and animal agriculture is the biggest component of U.S. agriculture, employing large numbers of Animal Science graduates. Animal Scientists with a background in molecular biology, microbiology or genetics are in demand for laboratory work in universities and the pharmaceutical/biotechnology industry. Furthermore, with additional education and graduate degrees, more opportunities in research, teaching, extension and veterinary medicine become available.

Today's Animal Science graduates go on to challenging careers in different fields. These opportunities require technical, personnel, and management training and can lead to jobs in livestock, poultry, egg and dairy units as well as horse farms, zoos, pet animal breeders and other related industries. A graduate of Animal Science can prepare himself for one or more of the many careers related to animal agriculture. These include:

- i. Livestock Production Managers in:
 - a. Beef
 - b. Dairy
 - c. Poultry
 - d. Sheep
 - e. Goat
 - f. Swine
- ii. Feed Production/Sales/Management
- iii. Livestock Equipment Sales/ Management
- iv. Livestock Consultant
- v. Breeding Expert
- vi. Livestock Feedlot Operator
- vii. Technical Representative
- viii. Lecturer/Teacher
- ix. Researcher
- x. Extension Specialist
- xi. Livestock Marketing Specialist
- xii. Housing & Environmental Quality Specialist
- xiii. Livestock Insurance Representative
- xiv. Animal Scientist Consultant
- xv. Food/Meat Product Development
- xvi. Quality Assurance
- xvii. Food Service Management
- xviii. Farm Management
- xix. Dairy Equipment Specialist
- xx. Market Reporter
- xxi. Meat Grade Specialist
- xxii. Employment with Commercial banks
- xxiii. Employment with Federal and State Governments

Disease and parasitism, which are also prime production considerations, are not a part of the traditional Animal Science but fall within Veterinary Medicine. Unfortunately, there has been limited communication between Animal Husbandry and Veterinary



