

# Animal Agriculture and Mankind

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# Good Afternoon

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Sir,
  - Key Officers of the  
University
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Colleagues
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  - Ladies and  
Gentlemen of
- It is a privilege and  
honour to stand here  
and speak before  
this academic  
community in our  
maiden edition of  
public lectures.

# Introduction

- Animal husbandry has been practised for thousands of years, since the first domestication of animals.
- Humans keep domesticated animals because they provide something of value.
- Animal's most universal and significant productivity is, in terms of milk, meat and/or eggs for direct consumption by the animal owners or for sale to others.
- Important but frequently overlooked contributions include draft power, manure, fibre, hides and other by-products.

# Introd...

- Animals are also used for transportation, protection, warfare, scientific research, companions and as ornaments.
- Animals domesticated for home companionship are usually called pets while those domesticated for food or work are called livestock or farm animals.
- Other animal products and uses are:
  - Cheese
  - Honey
  - Leather
  - Horse/ox drawn wagon and plows
  - Horse racing and riding

# Introd...


- Park rangers and police horses.
- Cat gut (sheep gut).
- Silk
- Wool
- Alligators and crocodiles' skin used for expensive shoes and purses
- Snake skins used for hat bands and shoes
- Fur coats
- Pearls
- Glue and gelatin (made from cartilage and bones).
- Truffle-hunting pigs.
- Elephants in circus, transportation and log industry

# Introd.....

- Animals used for biological controls such as-
- Mosquito fish that eats mosquito larvae
- Ladybugs that eat aphids .
- Feathers used in pillows and feather meal.
- Invertebrate animals like lobsters , crabs and sea urchins are used as food.
- Camels used for transportation and meat
- Animal products used for clothing are cashmere from goats and alpacas, wool from sheep.
- Donkeys and mules are also used for draft


# Management Systems

- Management system can be extensive or intensive farming system.
- Extensive agriculture is an agricultural production system that uses small inputs of labour and capital relative to the land area being farmed or grazed.
- Nomadic herding is an extreme example of extensive farming, where herders move their animals to use feed from occasional rainfalls.
- Animal welfare is generally improved because animals are not kept in stifling conditions.

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- Large land requirements limit the habitat of wild species and low stocking rates of livestock.
  - Intensive agriculture is an agricultural production system characterized by high use of input such as capital, labour and chemical fertilizers relative to land area.
  - Agricultural intensification has been the dominant response to population growth, as it allows for producing more food on the same amount of land.



- Intensive animal farming practices can involve very large numbers of animals raised on limited land which requires large amounts of food, water and medical inputs.
- Intensive livestock farming provides opportunity to capture methane emissions which would otherwise contribute to global warming.
- Once captured, these emissions can be used to generate heat or electrical energy, thereby reducing local demand for fossil fuels.

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- Factory farming is the process of raising livestock in confinement at high stocking density, where a farm operates as a factory which is a practice typical in industrial farming by agribusinesses.
  - The main products of this industry are meat, milk and eggs for human consumption.

# Environmental impact

- Concentrating large numbers of animals in factory farms is a major contribution to global environmental degradation.
- Livestock production is also particularly water-intensive in indoor, intensive systems.
- Eight percent of global human water use goes towards animal production, including water used to irrigate feed crops.
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# Animal Production in Nigeria

- Available data on the population of Nigerian cattle is based on estimation of over 15 million, with additional supplies from neighbouring West African countries (Ikhatua, 2011).
- He stated that beef production from these animals is not in sufficient quantity and too expensive to meet the needs of the ever increasing human population in Nigeria.
- Cattle are found throughout Nigeria but are commonest in the northern two-thirds of the country.

- Zebu breeds in Nigeria are mostly dual-purpose reared for both milk and meat while N'dama, Keketu and Muturu are strictly beef animals.
- Beef production in Nigeria is almost entirely extensive with low inputs and low productivity.
- Feedlotting operations in Nigeria are scanty and should be encouraged.

# Dairy development in Nigeria

- The activities of the Nigerian dairy industry are centred on milk production , importation, processing, marketing and consumption and these have been going on from pre-independence time.
- The dairy industry represents an important component of the agricultural sector of the economy with huge nutritional impact (Olaloku, 1976, Yahuza,2001).
- The industry provides a means of livelihood for a significant proportion of rural pastoral families in the


- Sub-humid and semi-arid ecological zones.
- Nigeria has 1.8 million cows (FAO, 2001).
- Ninety six percent of all cattle in Nigeria are in the hands of the pastoral Fulanis.
- The pastoral herd is the most important source of domestic milk.
- Only a few imported cattle breeds such as Friesians and Brown Swiss, and their crosses are kept in experimental dairy farms owned by government agencies and few private commercial dairy farms.

- Traditional milk products include nono (sour milk), Kindirmo (sour yoghurt) maishanu (local butter), cuku (Fulani cheese) and wara (Yoruba cheese).



# Small ruminants

- Over 51 million heads of sheep and goats are in Nigeria (FAO, 2001).
- The animals are kept mainly for their meat and skins.
- Majority of small ruminants are sedentary village livestock.
- Goats provide over 25% of the total lean meat consumed in Nigeria (Aregheore, 2009), therefore, they are the small ruminants of choice.
- Sheep are the second most numerous ruminant species in Nigeria.

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- All Nigerian sheep are used for meat and are rarely milked.
  - There is a marked variation in demand coinciding with religious festivals.

# Pastures

- Various grasses species exist in Nigeria examples are *Cynodon nlemfuensis*, *Andropogon gayanus*, *panicum maximum*, *Pennisetum purpureum*, *Cenchrus ciliaris*, *Imperata cylindrica* etc.
- The legumes include *Lablab purpureus*, *Stylosanthes guianensis*, *Centrosema pubescens*, *Calopogonium mucunoides* which are very valuable protein sources.
- There are also a number of tree legumes and multi-purpose trees such as *Leucaena leucocephala*, *Spondias mombin* etc. which

# Poultry

- Poultry farming is the raising of domesticated birds such as chickens, turkeys, ducks, geese, quails, guinea fowls for the purpose of producing meat or eggs for food.
- Poultry are farmed in great numbers with chickens being the most numerous.
- The most intensive poultry farming methods are very efficient and allow meat and eggs to be available to the consumer in all seasons at a lower cost than free-range production.

# Egg laying chickens

- Commercial hens usually begin laying eggs at 16-20 weeks of age, although production gradually declines soon after 25 weeks of age.
- At about 72 weeks of age, flocks are considered economically unviable and are slaughtered.
- Some commercial breeds of hen can produce over 300 eggs a year.

# Meat producing chickens

- Meat producing chickens, commonly called broilers, are floor raised on litter such as wood shavings, indoors in climate-controlled housing.
- Under modern farming methods, meat chickens reared indoors reach slaughter weight at 5 to 6 weeks of age.
- Growout houses should be equipped with mechanised system to deliver feed and water to the birds under normal situation.

# Quail farming

- Japanese quail farming is practised by many poultry farmers in Nigeria.
- Quail is less susceptible to diseases, has lean meat and low level of cholesterol in both meat and eggs (Musa, Haruna and Iombin, 2007).
- Exodus 16 verse 13 stated "that evening quail came and covered the camp, and in the morning there was a layer of dew around the camp". NIV version. That was meat and manna sent by God to the Israelites in the desert during the time of Moses and Aaron.

# Rabbit Production

- Rabbits have been produced for over 3,000 years.
- Today rabbits are raised for meat, research, pets, shows and pelts.
- After deciding to go into business find a market and good source of breeder stock.
- Start on a small scale, not more than 20 does and 3 bucks are recommended for the beginner.
- You have plenty of time to expand the business to any size you want.



# New Zealand white



# Pig Farming

- Intensive piggeries or hog lots are a type of factory farm specialized in the raising of domestic pigs up to slaughter weight.
- In this system of pig production, grower pigs are housed indoors in group-housing or straw-lined sheds.
- Intensive piggeries are generally large warehouse-like buildings or barns.
- Pigs are naturally omnivorous and are generally fed a combination of grains and protein sources.

- Larger intensive pig farms may be surrounded by farmland where feed-grain crops are grown.
- Piglets are weaned and removed from the sows at between two and five weeks old and placed in sheds, nursery barns or directly to growout barns.
- Pork, sausages and bacon are products of pig farming.

# Equine production

- Horses and donkeys serve as sources of meat, transportation, traction, milk and beast of burden.
- Donkeys play significant role in the rural economy in many African countries including Nigeria.
- Donkeys are grazers as well as browsers (Aganga and Tsopito, 1998).
- The teeth and lips of donkeys permit them to graze close to the ground; thus they can graze short vegetation efficiently. Donkeys are non-selective grazers and can feed on a wide



# Aquaculture

- Aquafarming is the farming of aquatic organisms such as fish, crustaceans, molluscs and aquatic plants.
- Aquaculture involves cultivating freshwater and saltwater populations under controlled conditions, and can be contrasted with commercial fishing, which is the harvesting of wild fish.
- Mariculture refers to aquaculture practised in marine environments and in underwater habitats.

- Particular kinds of aquaculture including fish farming, shrimp farming, oyster farming, algaculture (such as seaweed farming) and the cultivation of ornamental fish.
- Particular methods include aquaponics and integrated multi-trophic aquaculture, both of which integrate fish farming and plant farming.
- The farming of fish is the most common form of aquaculture.

# Fish Farming

- It involves raising fish commercially in tanks, ponds, or ocean enclosures, usually for food.
- Fish species raised by fish farms include salmon, carp, tilapia, catfish and cod.
- Welfare in aquaculture can be impacted by a number of issues such as stocking densities, behavioural interactions, disease and parasitism.



# Trends in Africa...

- Trends in both livestock numbers and rangeland production show that cattle numbers are on the decline and small stock and equine (donkeys in particular) are increasing while rangeland productivity is declining.
- The decline in cattle numbers is attributed to poor management, the results of which are frequently accelerated by drought.
- Sheep and goats, though wholly dependent on natural rangelands are less sensitive to rangeland degradation due to their morphological adaptations that allow them to forage more selectively than cattle.
- Livestock in general acts as a source of income at individual and household levels, create employment, provide services in support of crop production - in terms of draught power and manure used as an organic fertiliser in gardens and arable fields.

# Trends

- They also provide status and prestige within the immediate community, fulfil social, cultural and religious requirements and obligations, provide food and other direct products, reduce and spread risk attached to failure of crops and generation and accumulation of wealth.
- Animal agriculture competes with the ever-increasing human population and settlements for space hence there is need to increase performance per animal on the limited space.
- Also, there is need to conserve the bio-diversity for future production and generations and also preserve the integrity of the environment through sustainable livestock production.

# Research

- Most scientists believe that research will support the development of animal agriculture.
- Unfortunately, this belief is not always shared by the decision-makers who allocate the resources (Fitzhugh et al.,1992).
- It is therefore of importance to demonstrate that research is justified by more effective development.
- ILCA (1992) stated that an important element of a successful research strategy is to ensure that it favourably impacts social economic development.
- Research supports the development of animal agriculture in many ways, mainly enhancement of livestock productivity which leads to a more efficient utilization of available resources.



# Research Strategies:

- Research is one essential element along with extension, education and investment for the successful development of animal agriculture (Winrock International, 1992).
- Fitzhugh et al. (1992) stated that research can also act as a catalyst to expedite and ensure the success of development activities.
- A successful strategy must be based on the assumption that animal agriculture is a positive factor in long-term, sustainable agriculture and that research will enhance the contribution of livestock to sustainable agricultural development.
- Fitzhugh et al. (1992) suggested that strategies should embody the following concepts: adequate economic returns to livestock farmers; maintenance of natural resources and productivity; minimal adverse environmental effects; optimal production with minimal external inputs; and satisfaction of human food and income needs as well as of rural family's social needs.
- Farm systems approach to developing and implementing research strategies is essential.

# Cattle



# Goats



# Sheep





## to development:

- Smaller holder dairy farming where farmers keep 1-5 cows and milk is delivered to a collection centre. This has been shown elsewhere to be profitable with low capital set up hence leading to development, poverty alleviation and food security.
- Small ruminant farming involves low cost to set up and sheep and goats reproduce at a fast rate and mature early. Therefore; the animals can contribute to individual empowerment.
- Dairy goat farming development on small scales can contribute to goat milk production and generate employment in the country.
- Rabbit farming and quail farming are areas that can contribute to rural development and empower women that ventures into the business.

## Suggested research areas that can contribute to development:

- To ensure that the research undertaken addresses farmers' needs, all the research proposals should be discussed by different committees/boards.
- Critical areas that can be evaluated in the research proposals are (a) Characterization of the farming system which identifies inputs, output, potentials, constraints and interactions of components (b) Development of interventions to resolve constraints and also design of alternative systems (c) Feasibility of the alternatives technically, economically and social acceptability.
- All of the research proposals should begin with the identification of problems faced by farmers.



Production levels of beef cattle, sheep and goats should be evaluated and necessary interventions developed.

- Evaluation of Nutrient composition and utilization of indigenous browse as potential feed resource for grazing livestock.
- Range research could evaluate different types of grazing systems on performance of herbaceous plants and steers, bush control studies and development of techniques to rehabilitate degraded range lands within the tree and shrub savannas.

## **Suggested research areas that can contribute to development:**

- Technology is a major research output for the development of animal agriculture. Therefore, research to adapt and transfer technologies for small-scale, resource poor farmers will ensure sustainable development of animal agriculture.
- Currently, research strategies embodying development and application of advanced technologies such as (a) molecular genetics research, including genome mapping and (b) reproductive technologies such as in vitro fertilization, embryo transfer and other techniques to assist characterization of indigenous genetic resources are on the rudimentary scale and should be developed.

## Adoption of innovations:

- A major constraint to the adoption of improved innovations in animal agriculture by small scale farmers is the land tenure system which is communal that is associated with a lack of clearly defined and secure property rights.
- This results in overexploitation, underinvestment and general mismanagement of resources.
- Land use and rangeland policies that guarantees secure property rights will enable farmers to propagate foddors and control breeding of their animals.
- The farmers will be able to adopt more of the improved animal production technologies and it will also control spread of infectious livestock diseases.
- All these improved management practices will ensure sustainable animal agricultural development.

# Conclusion

- Animal Agriculture is an important aspect of human life since the beginning of the world.
- Man depends on animals for food and essential nutrients especially protein for survival.
- Man should continue to farm and practice humane animal agriculture for optimal food production at least cost.
- Animals are man's best friends and they are very reliable and protective of their friends.

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  - Students of FUOYE
  - For your time.