

**A REPORT ON LIVESTOCK AGRIBUSINESS FOR INCREASED INCOME  
AND FOOD SECURITY TRAINING ORGANISED BY THE TETFUND CENTRE  
OF EXCELLENCE IN FOOD SECURITY, UNIVERSITY OF JOS ON THE 21<sup>ST</sup> -  
25<sup>TH</sup> OCTOBER 2024**

The training started at exactly 9:58 am with the introduction of all participants including all facilitators. The opening prayer was said by a participant and the opening remarks was made by the director of the Centre Prof.P.S.Amaza. He started by appreciating all facilitators for coming despite their tight schedules. He spoke on how Agribusiness has been helping in increasing income and food security through the production of milk, eggs, hides and organic manure, processing of livestock into high value and marketing which are components of the agriculture value chain. He admonished that a proportion of the opportunities that exist should be considered to earn more income. He concluded by encouraging all participants to make good use of the opportunity to empower themselves, his admonition ended at 10:22 am.

The morning's inaugural presenter, Dr. (Mrs.) Oyedapo, commenced her lecture on 'Aquaculture and Value Chain' at 10:30 am. Her presentation underscored the crucial role of value addition in aquaculture, outlining various techniques for processing fish by-products. Dr. Oyedapo emphasized the necessity of market analysis in selecting processing methods. She concluded her session at 10:59 am by highlighting the potential for profitability in aquaculture through strategic branding and partnerships with off-takers. A subsequent question-and-answer period provided attendees with an opportunity to seek clarification on key concepts.

The second presenter, Mr. Lawrence Igoche, commenced his lecture on Aquaculture at 11:42 am, exploring the principles and motivations behind fish cultivation. His comprehensive discussion covered:

1. Aquaculture types and classifications
2. Culture facilities and fish sources
3. Fish production steps and critical stocking considerations
4. Essential fish farm operations, including:
  - a. Water quality management
  - b. Infrastructure maintenance and inspection
  - c. Feeding and sanitation/biosecurity protocols
  - d. Sampling, sorting, and record keeping
  - e. Harvesting

The presentation concluded at 12:26 pm, followed by a question-and-answer session. The morning session was adjourned at 1:04 pm, preceding the scheduled lunch break from 1-2 pm.

The afternoon session, facilitated by the two expert trainers, began at 2 pm. A practical demonstration on fish drying and smoking techniques was conducted, highlighting the fundamental differences between these preservation methods. Key topics covered included:

1. Salt utilization in fish preservation
2. Smoking process variants
3. Comparative analysis of drying and smoking

Subsequently, Dr. (Mrs.) Oyedapo provided hands-on instruction on curing, marinating, and smoking various fish species, including catfish, Titus fish, and hake fish (a stockfish variant). The potential application of hake fish as fish fillets was also explored. The afternoon session adjourned at 3:26 pm, and the training program concluded at 3:28 pm with a closing prayer, marking the end of the day's activities.



The Cross section of the Centre Director, all facilitators and participants



The Facilitator demonstrating spicing of catfish before smoking



The Centre Director, Secretary, Evaluation and Monitoring Officer with all facilitators



coating of Catfish with spices



Preparation of Fish spice



Spicing of Catfish before smoking

## **DAY 2**

### **Rabbit Production and Value Addition: Unlocking Opportunities**

The second training program day commenced with Dr. Idachaba Collins U. delivering an insightful presentation on rabbit production and value addition. The session, which began at 10:14 am, provided participants with a comprehensive understanding of the benefits and potential of rabbit farming.

Dr. Idachaba started by highlighting the classification and benefits of rabbits, emphasizing their prolificacy, low production costs, and environmental sustainability. He further elaborated on the nutritional composition of rabbit meat, underscoring its importance as a protein source. The facilitator also discussed the various breeds of rabbits, feeding and nutrition strategies, and essential management practices, including housing, breeding, and disease management.

In the afternoon session, Dr. Idachaba shifted focus to value-added products from rabbit production. He showcased innovative ways to utilize rabbit manure and urine, such as foliar fertilizers and pesticides. Additionally, he emphasized the significance of branding and packaging in enhancing the marketability of rabbit products. The facilitator also explored the entrepreneurial aspects of rabbit production, highlighting the potential for low capital investment, diverse market opportunities, and quick returns on investment. Dr. Idachaba concluded by discussing future trends in rabbit production, including genetic improvement, advanced feeding strategies, disease management, and technology integration. The session ended at 3:07 pm, followed by a question-and-answer segment and appreciation for the facilitator.

The Director encouraged participants to capitalize on the opportunities presented, emphasizing the potential for rabbit production to contribute to food security and economic growth. In conclusion,



the training program on rabbit production and value addition equipped participants with valuable knowledge and insights. As the demand for protein sources continues to rise, rabbit farming presents a viable opportunity for entrepreneurs and farmers. By embracing innovative practices and value-addition strategies, stakeholders can unlock the full potential of rabbit production and contribute to sustainable agricultural development.



**Participants at the Lecture**



**Facilitator delivering his lecture**



**Participants at the Lecture venue**

## **DAY 3**

### **The Importance of Value Addition in Animal Products**

On 23<sup>rd</sup> October 2024, Dr. Ezekiel Ogashi convened the morning session at 9:20 am, which commenced with an opening prayer. Dr. Olusegun Oshibanjo then took the stage at 9:25 am to discuss the value addition of meat, milk, and egg products.

Animal products are the backbone of animal science, providing essential protein sources. Meat, in particular, is rich in minerals and amino acids. To enhance its nutritional value, compounding feed with amino acids and crude protein is crucial. Value addition in meat boosts income and profitability by increasing nutritional value, economic benefits, and health advantages.

The advantages of value addition in meat include increased convenience, reduced preparation time, minimized processing steps, cost reduction, and sustainable demand. Approaches to value addition involve processing operations such as cutting, tenderization, grinding, flaking, freezing, and packaging. Further processing techniques include curing, smoking, marinating, emulsifying, forming, and cooking. UV light aids in removing microorganisms.

Common procedures for value-addition in meat products include combining meat with non-meat ingredients, incorporating vegetables, and utilizing emulsion technology. However, limitations exist, including capital-intensive processes, insufficient cold chain infrastructure, lack of organized marketing systems, and limited technology and manpower.

Dr. Oshibanjo also discussed value addition in dairy products, highlighting skim milk, casein, buttermilk, whey, and lactoferrin. He emphasized the importance of understanding when and how to utilize these products. Additionally, he explored value addition in egg products, such as fortified eggs with vitamin C, using eggshells as fertilizer, and optimizing egg composition.

The practical session, started at 11:50 am, demonstrated yoghurt production, utilizing UV light, mayonnaise, suya and refrigerated/frozen egg products. Dr. Oshibanjo showcased samples of egg powder, chicken fillets, and various value-added egg products. In conclusion, value addition in animal products enhances nutritional value, economic benefits, and health advantages. Addressing limitations and leveraging opportunities is crucial to optimizing the potential of animal products.



**Dr. Osibanjo at his lecture**



**Dr Ezekiel (Convener) addressing participants**



**Bottles of different flavor of Yoghurt made**





**A side wing of the Lecture hall**



**Afternoon session during the practical class**



**Suya spices**



**Making of Mayonnaise**



**Meat for Suya and Dambu**





**Spicing of Suya**



**Cutting, Spicing and Sticking of Suya**



**Yoghurt Making**



**Spiced Suya to be smoked**



**Roasting of Suya**

## DAY 4

### **Optimizing Animal Nutrition Through Effective Feed Formulation**

The morning session of the training program commenced at 9:12 am, anchored by the convener. Two participants shared their experiences and the impact of the training on their work. The director delivered his opening remarks, encouraging participants to apply the knowledge gained. His remarks was concluded at 9:34 am.

Dr. U. Okpanachi took the stage at 9:38 am to present on Feed Formulation and Improvement. He emphasized that formulating feed on-farm is more cost-effective than purchasing commercial feed. Dr. Okpanachi advised against prioritizing cost and nutrient composition alone, highlighting the benefits of on-farm feed formulation:

- Eliminating transportation and bagging costs
- Avoiding unwanted materials, such as growth hormones linked to cancer
- Utilizing local, affordable feeding stuffs
- Ensuring regular supply of fresh feed
- Controlling food quality, particularly protein content

Key factors in feed formulation include:

1. Availability and cost of feed ingredients
2. Anti-nutritional factors present
3. Availability of nutrients
4. Nutrient requirements of animals
5. Storage of feedstuff
6. Quantity of feed to be mixed
7. Legal considerations

Dr. Okpanachi explained that feed formulation begins with percentage-based calculations, later converted to quantitative weights. He discussed the role of additives, such as:

- Enzymes
- Grit or sand
- Yolk and egg shell colorants
- Coccidiostats
- Anthelmintics
- Antioxidants

Visual aids demonstrated pellet, crumble, and mash feeds.

Following a question-and-answer session, Dr. Okpanachi elaborated on feed formulation techniques, including trial and error and the Pearson Square method. The session concluded at 12:55 pm.

The practical session, starting at 2 pm, involved demonstrating feed mixing using feedstuffs of varying weights, as per the feed formula. Dr. Okpanachi emphasized the importance of:

- Using sensitive weighing scales for micro-ingredients
- Utilizing standard scales for macro-ingredients

By adopting effective feed formulation strategies, animal nutrition can be optimized, leading to improved productivity and profitability.





Handmixing of Feeds



The facilitator demonstrating how to weigh feeds



Mixing of micro ingredients in a small bowl



weighing of ingredients

## **DAY 5**

### **A Visit to Dagwoms' Farm, National Veterinary Research Institute (NVRI), Vom, Plateau State**

On 25<sup>th</sup> October 2024, the fifth day of the training, the participants embarked on an enlightening visit to Dagwoms' Farm, a section of the National Veterinary Research Institute (NVRI) in Vom, Plateau State. The farm is divided into three sections: fabrication, rabbitry, and feed milling.

#### **Rabbitry Unit (9:20 am - 10:03 am)**

Upon arrival, we met with personnel at the Rabbitry Unit, who shared valuable insights into rabbit husbandry. He highlighted the importance of rabbits as a protein source and explained their handling and management. The farm boasts of an impressive array of rabbit breeds, including Dutch, New Zealand White, English Spotted, Chinchilla, Angora, Japanese Harlequin, California White, and American Checked. To prevent inbreeding and diseases, rabbits are kept separately, and those with more than two colors are considered crossbred. Coccidiosis is a common disease affecting rabbits, and deworming is regularly conducted after weaning.

#### **Feedmilling Unit (10:03 am - 10:58 am)**

Next, we visited the Feedmilling Unit, which comprises two sections: Oil Seed Processing and Feedmill. The personnel in charge explained the processing of oil seeds to remove antinutritional factors and toxins. Various machines, including mixers, conveyors, and expellers, are utilized to produce soybean cake and oil. The importance of safety and quality control in feed production was emphasized, highlighting the use of macro and micro feed ingredients, toxin binders, and enzymes.

### **Fish Farm Visit (11:50 am - 12:23 pm)**

Our final destination was the Dadin Kowa Fish Farm. Upon arrival, a farm attendant guided us through the facility, showcasing 12 earthen ponds with aquatic plants providing supplementary feed for the fish. Fish of varying sizes were fed accordingly, and the farm boasts an impressive stock of catfish and tilapia. The attendant highlighted the significance of planting banana trees for shade and gaseous exchange. Security concerns on the farm were also addressed.

The visit was concluded with an appreciation from Dr. U. Okpanachi, Head of the Department of Animal Production. This enlightening experience provided valuable insights into animal husbandry, feed production, and aquaculture. The trip demonstrated the importance of integrated farming systems and the potential for sustainable protein production in Nigeria.



The Feedmill personnel explaining the function of the crusher and the mixer



The mixer at the feedmill section





Corncob at the feedmill



Different Breeds of Rabbit at the Rabbitry