

Training Report
On
Basic on Feed Formulation with Nucleus Farms in Tramkok district,
Takeo province, Cambodia
Phase I



Under
Community Innovation Platform

18 November 2023

Prepared by Team LDC



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I. Introduction

AsCGG is ACIAR funded project with principal partners in Cambodia and Vietnam that aims to test and avail high-producing, farmer-preferred chicken strains to increase smallholder chicken production and productivity in the two countries. The project will establish a participatory indigenous chicken breed improvement program in Cambodia in three selected Nucleus breeding farms in Tramkok district, Takeo province. This research for development activity will jointly be planned, designed, implemented, monitored, and evaluated by National Animal Health and Production Research Institute (NAHPRI), Livestock Development for Community Livelihood Organization (LDC), and smallholder based Private breeding farms and International Livestock Research Institute (ILRI).

1. Objective

- To provide the basic of feed formulation for nucleus farms and interest chicken producers
- To demonstration on feed calculation base on chicken requirement
- To use local feed ingredients that available
- To calculate feed cost from each formulation

II. Course expectation from participant

At the end of the course, participants will gain

- Well understand on basic of nutrition require by animal especially chicken
- Fundamental of energy, protein, mineral and vitamin
- Aware on ingredient to supply energy, protein, mineral and vitamin
- Will understand on protein, energy, mineral and vitamin by different ages of chicken.
- Can do feed formulation by themselves

III. Location

1. Timeline:

This training course started on 18 November,2023, with both theory and practice on feed formula calculation.

2. Location

The training was conducted in one of nucleus farm namely Mrs. Ngeth Bunthouern located in Ang Tnoat khang lich village, Ang Tasom commune, Tramkork district, Takeo province.

3. Facilitator in the training

- The key facilitator is Dr Chhay Ty Deputy Director in Livestock Development for Community Livelihood Organization (LDC).
- Mr. Son Pov Project officer in Livestock Development for Community Livelihood Organization (LDC).

4. Participant

There are 14 participants (woman 6) attended in the training in which 6 persons from nucleus farm and data collections, 2 persons from LDC.

IV. Result

To perform feed formula calculations after completing training by a computer, you'll need to follow a systematic approach. Feed formulation involves determining the right combination of ingredients to meet the nutritional requirements of the animals you're feeding. Here's a general guide on how to perform feed formula calculations:

- Define Nutrient Requirements:
- Gather Ingredient Information: Collect information on the nutrient composition of available feed ingredients.
- Trial and Error: Adjust the quantities of ingredients in the formulation iteratively until you achieve a balanced and cost-effective feed formula.



Photo1: Perform feed formula calculation

វត្ថុធាតុដើម	ម៉ាសស្នូត %	ថាមពល	ប្រូតេអ៊ីន, %	ខ្លាញ់, %	ជាតិសរសៃ, %	កាល់ស្យូម, %	ផូស្វ័រ, %	តម្លៃ, រៀល/តក្រ
កន្ទក់	89.73	3004	12.48	14.35	6.06	0.10	1.39	1100
ចុងអង្ករ	88.27	3559	7.77	0.91	0.27	0.04	0.10	1800
ពោត	86.9	3340	8.70	3.60	2.10	0.04	0.3	1800
មើមដំឡូង	47.0	3706	1.69	12.0	3.02			800
ម្សៅគ្រី	87.3	475	57.7	6.55	21.6			3800
កាកសណ្តែកសៀង	89.1	2341	47.14	2.13	3.57		0.61	2800
ចំណីសម្រេច	88.0	2500-2750	42-45		4.5-7.0	2.5-4.0	1.0-2.2	3800
អំបិល								875
ម្សៅផ្តឺង								3000
ប្រេមីច								15000

Photo2: Nutrients in raw material

V. Fundamental of feed Ingredients

Chicken feed is formulated to provide the essential nutrients that chickens need for proper growth, development, and overall health. The composition of chicken feed can vary based on the age, breed, and purpose of the chickens (e.g., laying hens, Chickens, or Broiler chicken). Here are the basic components typically found in chicken feed:

There are four types of nutrient requirements: Energy feeds, protein feeds, mineral feeds, and vitamin feeds

- Energy food provides energy to move and stimulate digestion. The main types of energy foods are: corn, bran, broken rice, rice, *cassava*, All kinds of sugar, and Fat.
- Protein Source: Protein feed is needed for meat production, making chickens grow faster and have more meat. Types of foods that provide protein include fish meal, soy or soybean meal, feeders, locusts, crickets, crabs, Earthworm, and termites.
- Mineral foods help strengthen bones, form eggshells and maintain balance in animals. These foods are found in: salt, snail shells, or grind it into a paste, bone meal, and agricultural lime.
- Chicken vitamin feed requires only a small amount of vitamin feed to fulfill organic functions. Many vitamin foods are easy to find in:
 - Premix for mixing with Feed.
 - Vitamins sold in the market.
 - Green vegetables (bean sprouts, Amaranth, water spinach, wax gourd, pumpkin, grass).

The process of mixing chicken feed involves carefully combining these ingredients in the appropriate proportions to meet the nutritional requirements of the chickens. Commercial feed manufacturers use specialized equipment to achieve a uniform and well-balanced blend of ingredients. The goal is to create a feed that supports the growth, health, and productivity of the chickens.

Farmers or Chickens keepers who mix their own feed on a smaller scale need to be attentive to the nutritional needs of their specific chickens. They may use premixed concentrates or individually purchase different feed ingredients to create a custom blend. It's important to follow recommended guidelines and consult with chicken nutrition experts to ensure that the feed meets the nutritional requirements of the chickens at different stages of their life cycle.

Photo 3: Feed energy.



Photo4: Feed Protein.



Photo5: Vitamins and minerals:



1. Amount of raw material to be mixed

The amount of raw material to be mixed is:

- Energy raw material must be mixed in the amount of 70 to 75%
- The raw material provides protein to be mixed in the amount of 20 to 25%
- Raw materials provide vitamins and minerals to be mixed in the amount of 3 to 5%



Photo6: Mixing of raw materials

2. Protein requirements of chickens:

The percentage of protein that chickens need in their diet varies depending on their age, breed, and purpose (e.g., meat production or egg-laying). Protein is a crucial component in chicken feed as it supports muscle development, feathering, egg production, and overall growth. Here are general guidelines for the protein content in chicken feed at different stages of life:

- Chickens, 1 day to 6 weeks need protein 20-21%
- Chicken 7-14 week need protein 17-18%
- Chicken 14-21 week need protein 15-16%
- For laying hens: 14-15% protein

3. Nutrient requirements of chickens

Chickens require a variety of nutrients in their diet to support growth, development, egg production, and overall health. The essential nutrients for chickens can be broadly categorized into the following groups:

The specific nutrient requirements vary depending on factors such as the age, breed, sex, and purpose of the chickens (meat production or egg-laying). Poultry nutritionists formulate feed to meet these specific requirements at different stages of the chicken's life cycle, and balanced nutrition is essential for optimal health and productivity.

Chemical composition	Scale	Ege Chicken	Ege Chicken	Ege Chicken	Ege Chicken
		0-6 week	6-12 week	12-15 week	15 week - layer
Protein	%	20	17.5	15.5	16.5
Energy	Kcal/Kg	2750-2970	2750-3025	2700-2970	2725-2980
Calcium	%	1	1	1	2.75
Phosphorus	%	0.45	0.43	0.42	0.40

VI. Conclusion

Upon completing training on chicken feed mixing, participants should ideally achieve a range of results, demonstrating their knowledge, skills, and ability to apply what they've learned:

- Understanding of Nutritional Requirements: Participants should be able to articulate the nutritional needs of chickens at different stages of growth and production, demonstrating a solid understanding of the essential nutrients required for optimal health.
- Competence in Feed Formulation: Participants should be capable of formulating well-balanced chicken feed recipes, taking into account the appropriate proportions of sources of energy, protein sources, vitamins, minerals, and supplements.

- Safe and Hygienic Practices: Participants should adhere to safety and hygiene practices during the feed mixing process, ensuring the quality and safety of the final feed product.

Overall, the results of completing training on chicken feed mixing should empower participants to confidently and competently formulate, mix, and manage chicken feed in a way that optimizes the health and productivity of their chickens

VII. Annex 1: List of attendants

No.	Name	Sex	Institution	Position	E-mail/phone
1	Chhay Ty	M	LDC	Deputy Director	092 61 61 60
2	Son Pov	M	LDC	Project officer	093 85 24 21
3	Yem Sony	M	Rusey Srok village	Farmer	096 36 16 457
4	Ngeth Bunthoeun	F	Ang Tnoat khanglich village	Farmer	011 71 14 60
5	Rin Kimhong	M	Ang Tnoat khanglich village	AC member	099 99 77 73
6	Kong Eth	M	DAHW	Staff	011 70 82 84
7	Khorn Sophy	F	Rusey Srok village	AC member	097 91 39 137
8	Nak SoPhinin	M	Ang Tnoat khanglich village	Farmer	097 66 36 571
9	Ron Sreyda	F	Ang Tnoat khanglich village	Farmer	No
10	Rin Sreymom	F	Ang Tnoat khanglich village	Farmer	No
11	Man Mith	M	Ang Tnoat khanglich village	Farmer	No
12	Chhoung Makara	M	Ang Tnoat khanglich village	Farmer	No
13	Ngeth Channy	F	Takeam Village	Farmer	No
14	Chan Sonal	F	Takeam Village	Farmer	No