



USER GUIDE FOR FEED FORMULATION APPLICATION

**A comprehensive user manual for Feed Formulation App
Addis Ababa, ETHIOPIA
Version 1.0
26/12/2023**

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1 Legend

Name	Abbreviation	Unit	Description
Dry matter	DM	%	The dry matter or dry weight is a measure of the mass of a completely dried substance. ^a
Metabolizable Energy	ME	kcal/kg	
Crude protein	CP	%	
Lysine	Lys	%	
Meth. +cystine	m+c	%	
Methionine	Met	%	
Ether extract	EE	%	
Crude fiber	CF	%	
Calcium	Ca	%	
Phosphorus	P	%	

2 Glossary

Ration

Formulation

Formula

Grid Formulation

Ingredients

Ingredient Group

Ingredient Composition

Nutrient Group

Nutrients

Requirements

Requirement Composition

Requirement Boundaries (Min & Max)

3 Introduction

This guide outlines the TPGS websites' capabilities and walks you through how you can use the application.

Access the webiste using either the below url or QR code.

To Access The App



Scan the QR Code or go to: <https://tpgs.ilri.org/>



4 Feed Formulation in Poultry Farming

Feed formulation is crucial in poultry farming, as it directly impacts chicken health, growth, and productivity. Properly formulated feed ensures that chickens receive the right balance of essential nutrients—proteins, carbohydrates, fats, vitamins, and minerals—which are necessary for optimal growth, egg production, and overall health. A well-balanced diet not only enhances growth and reproduction but also helps reduce disease risk, improves feed conversion rates, and lowers production costs. However, feed formulation is not a one-size-fits-all solution. It must account for factors such as the chicken's age, breed, production purpose (meat, egg, or breeding), and environmental conditions. Achieving the right balance requires knowledge of nutritional needs, available feed ingredients, and local farming conditions.

5 Poultry Nutrients and Their Functions

Poultry feed contains several essential nutrients, each playing a vital role in chicken health, growth, and productivity. These nutrients include:

Proteins and Amino Acids

Function: Proteins are the building blocks for growth, muscle development, tissue repair, and egg production. Amino acids like **Lysine** and **Methionine** are essential for optimal growth.

Sources: Soybean meal, fish meal, alfalfa.

Carbohydrates

Function: Provide the primary energy source for chickens, supporting heat production, activity, and metabolism.

Sources: Corn, wheat, rice, barley.

Fats (Lipids)

Function: Provide concentrated energy, assist in fat-soluble vitamin absorption, and support cell structure.

Sources: Vegetable oils, fish oils, seeds.

Vitamins

Function: Support immune health, metabolism, and tissue development. Key vitamins include **A**, **D**, **E**, and B-vitamins (B12, niacin, folic acid).

Sources: Vegetables, fruits, liver, fish meal, yeast.

Minerals

Function: Essential for bone development, enzyme function, and electrolyte balance. **Calcium** and **Phosphorus** are critical for bone health and eggshell formation.

Sources: Limestone, dicalcium phosphate, salt, trace minerals.

Water

Function: Vital for digestion, nutrient absorption, temperature regulation, and overall cellular function.

Sources: Clean, fresh water is essential for hydration.

Fiber

Function: Aids in digestion and gut health, supporting motility and proper droppings formation.

Sources: Wheat bran, vegetable matter, rice hulls.

Antioxidants

Function: Protect cells from oxidative damage and support immune function. **Vitamin E** and **Selenium** are key antioxidants.

Sources: Vegetable oils, selenium-enriched grains.

Enzymes

Function: Improve feed efficiency by aiding in digestion and nutrient absorption.

Sources: Naturally occurring in feed or supplemented.

5.0.1 Nutrient Balancing

For optimal poultry health and productivity, nutrient balance is key. For example:

- An imbalance of calcium and phosphorus can affect bone health or eggshell quality.
- A proper balance between protein and energy is crucial to support growth, laying, or meat production, depending on the bird's purpose.

6 The Role of Feed Formulation Apps

Advancements in technology have simplified feed formulation through user-friendly apps. These apps make the complex process of creating a balanced poultry diet accessible to both smallholder farmers and large-scale producers. The apps offer features that streamline the formulation process, such as:

Simple Interface: Intuitive design for users with varying technical expertise, allowing them to input chicken details (age, weight, goals) and get customized feed recommendations.

Ingredient Database: Comprehensive databases that include local and international feed ingredients, enabling users to create balanced rations with familiar or locally available resources.

Nutrient Balancing: Automatically adjusts feed formulations to meet specific nutritional requirements, ensuring proper growth, egg production, or other specific outcomes.

Cost Optimization: Users can input local feed prices, helping them create cost-effective formulations without compromising on nutritional quality.

Sustainability and Local Resources: Apps support sustainable practices by recommending locally available feed resources, reducing reliance on imported ingredients, and minimizing waste.

Data-Driven Insights: Some apps provide analytical tools to track feed efficiency, growth rates, and other performance metrics, enabling informed decision-making.

6.1 Flexibility and Sustainability in Feed Formulation

Feed formulation apps allow flexibility in using locally available feed ingredients, especially in regions where commercial feed is expensive or inaccessible. These apps help farmers utilize alternative feed sources, such as grains, legumes, agricultural by-products, and even insects, to develop affordable and sustainable feeding strategies. Locally sourced ingredients are often cheaper and help reduce dependency on external suppliers, contributing to the local economy.

Furthermore, the use of agro-industrial by-products (e.g., rice bran, cassava leaves) is encouraged, fostering a circular agricultural economy. These practices not only lower feed costs but also support long-term sustainability in poultry farming by reducing waste.

6.2 Affordable and Sustainable Feeding Solutions

Feed formulation apps support affordable and sustainable feeding solutions by:

Optimizing Feed Costs: Ensuring efficient use of local ingredients and minimizing waste.

Preventing Over- or Under-Feeding: Correctly balancing the diet helps avoid unnecessary expenses or health issues related to improper feeding.

Supporting Sustainability: By promoting locally available ingredients and reducing reliance on costly commercial feed, apps help ensure the sustainability of poultry farming in the long term.

7 Protein Requirements in Poultry Nutrition

Meeting the amino acid requirements of poultry through balanced protein sources is essential for optimal growth, productivity, and product quality. By carefully selecting and balancing protein ingredients, poultry producers can formulate diets that support both economic and nutritional efficiency.

7.1 Protein components

Essential Amino Acids:

- Poultry cannot synthesize essential amino acids, which include methionine, lysine, threonine, and tryptophan, among others. Therefore, these amino acids must be supplied through dietary protein sources.
- The **quality of a protein** source is often judged by its amino acid profile, specifically whether it contains adequate amounts of these essential amino acids. High-quality protein sources will meet poultry's requirements for essential amino acids, which are critical for muscle growth, feathering, and production performance.

Multiple Protein Sources:

- **No single feed ingredient** provides all essential amino acids in the necessary proportions for poultry. Consequently, formulating a balanced poultry ration requires combining multiple protein sources. This ensures the diet includes a well-rounded profile of amino acids.
- Typically, poultry diets are formulated with a mix of plant-based proteins (like soybean meal, corn gluten meal, or canola meal) and, if permitted, animal-based proteins (such as fish meal or meat and bone meal).

Limiting Amino Acids:

- **Methionine and lysine** are known as the “limiting amino acids” in poultry nutrition. They are often present in lower quantities in most feed ingredients relative to the birds' requirements, which can restrict growth if not supplemented adequately.
- Synthetic forms of these amino acids, such as **DL-Methionine** and **L- Lysine**, are commonly added to poultry feed to meet these requirements. Supplementing these amino acids improves protein utilization in the diet and reduces the need for excess dietary protein.

Anti-Nutritional Factors (ANFs):

- Poultry, particularly chickens, are sensitive to **anti-nutritional factors** (ANFs) that are present in some plant-based feed ingredients. ANFs, such as trypsin inhibitors in raw soybeans or tannins in some legumes, can interfere with protein digestion and amino acid absorption.
- Processing methods, like heat treatment, are used to reduce ANFs in ingredients like soybean meal, making them safer and more digestible for poultry.

Fish Meal Consideration:

- **Fish meal** is a rich source of protein and essential amino acids, particularly lysine and methionine. However, when included at levels above **5% of the total diet**, it can impart a fishy taste to poultry meat and eggs.
- For this reason, fish meal is usually limited in poultry diets unless the birds are not raised for human consumption or taste alteration is not a concern.

7.2 Common Protein Sources in Poultry Diets

Soybean Meal: A high-quality plant protein with a good balance of essential amino acids, widely used in poultry diets.

Corn Gluten Meal: Provides protein and energy, but is low in lysine, so it needs to be balanced with other ingredients.

Fish Meal: High in lysine and methionine but limited due to its potential effect on meat and egg flavor.

Meat and Bone Meal: Provides animal protein and minerals like calcium and phosphorus but is restricted in some countries due to regulatory concerns.

Synthetic Amino Acids: DL-Methionine and L-Lysine are often supplemented to ensure the diet meets the birds' requirements.

8 Fatty acid requirement in poultry

8.1 Fatty acid considerations

Essential Fatty Acid Requirement :

- Linoleic acid is classified as an essential fatty acid for poultry because birds lack the necessary enzymes to synthesize it from other nutrients. This means it must be supplied through the diet. Essential fatty acids are crucial for maintaining cellular membrane integrity, immune function, and skin health in poultry.
- Studies show that linoleic acid is particularly important for growth, feathering, and reproductive health in poultry. Deficiency in linoleic acid can lead to poor growth rates, reduced egg production, and impaired egg hatchability in breeders.

Dietary Role of Fat in Poultry Nutrition :

- Fats or oils are added to poultry diets not only as a concentrated energy source but also to improve nutrient absorption, particularly for fat-soluble vitamins (A, D, E, and K). These vitamins are essential for various physiological functions, including bone development, antioxidant defense, immune function, and reproduction.
- Fats help reduce the dustiness of feed, making it more palatable and less likely to cause respiratory irritation. Improved palatability also encourages feed intake, supporting growth and productivity.

Antioxidants in Fat-Containing Poultry Diets :

- When fats or oils are added to poultry diets, there is a risk of lipid oxidation, which can lead to rancidity. Rancid fats can reduce feed palatability and degrade fat-soluble vitamins, impacting the bird's health and performance.
- Antioxidants such as ethoxyquin, BHT (butylated hydroxytoluene), and vitamin E are commonly included in fat-containing poultry feeds to prevent oxidation. By preserving the stability of dietary fats, antioxidants help maintain the nutritional quality of the feed.

9 Mineral Requirements in Poultry Diets

9.1 Minerals considerations

Macrominerals vs. Microminerals :

- Poultry require higher levels of **macrominerals** and lower levels of **microminerals** to support essential physiological functions.
- **Macrominerals** include calcium (Ca), phosphorus (P), chloride (Cl), magnesium (Mg), potassium (K), and sodium (Na). These minerals are needed in larger amounts as they play crucial roles in skeletal development, electrolyte balance, nerve function, and muscle contraction.
- **Microminerals** (or trace minerals) include copper (Cu), iodine (I), iron (Fe), manganese (Mn), selenium (Se), and zinc (Zn). Although required in smaller quantities, microminerals are vital for enzyme function, immune response, antioxidant defense, and thyroid function.

Mineral Deficiency in Grains :

- Grains, which are often a primary energy source in poultry diets, tend to be low in both macro- and microminerals. Consequently, poultry diets require supplementation to ensure birds receive adequate mineral levels for optimal growth, health, and productivity.

9.2 Common Sources of Macrominerals

Calcium (Ca): Calcium is critical for bone health and eggshell formation in laying hens. Common sources include limestone and oyster shell, both of which are highly bioavailable forms of calcium. Limestone is often used in broiler diets, while oyster shell is more common in layer diets for sustained calcium release.

Phosphorus (P): Dicalcium phosphate is a primary source of both phosphorus and calcium in poultry diets. Phosphorus works in tandem with calcium for bone development and metabolic functions.

Other Macrominerals: Sodium and chloride are often provided through salt (NaCl), which maintains electrolyte balance, while potassium is naturally present in some feed ingredients or provided through potassium chloride as needed.

9.3 Mineral Premixes for Microminerals

- **Microminerals** are supplied in a **mineral premix**, which is added to the feed in small amounts. The premix is carefully formulated to provide the necessary levels of each trace mineral without risking toxicity. For example, zinc and manganese are essential for bone and immune health, while selenium functions as an antioxidant, protecting cells from oxidative damage.

9.4 Categories of Vitamins in Poultry Nutrition

- **Fat-Soluble Vitamins (A, D, E, and K):**
 - These vitamins are essential for various physiological functions:
 - Vitamin A:** Crucial for vision, immune function, and growth.
 - Vitamin D:** Important for calcium absorption, bone formation, and eggshell quality.
 - Vitamin E:** Acts as an antioxidant, protecting cells from oxidative damage, and supports immune function.
 - Vitamin K:** Needed for blood clotting and bone health.
 - Since these vitamins are stored in body fat, they need to be provided in moderate, consistent amounts to prevent deficiency or toxicity.
- **Water-Soluble Vitamins (Vitamin C and B Vitamins):**
 - Vitamin C:** Poultry can synthesize vitamin C, so it isn't usually required in diets. However, it can be beneficial during periods of stress (e.g., heat stress) to improve resilience and support immune function.
 - B Vitamins:** This group includes thiamine, riboflavin, niacin, pantothenic acid, pyridoxine, biotin, folic acid, and vitamin B12. B vitamins are essential for energy metabolism, nerve function, and growth.

These vitamins are not stored in the body to a great extent, so they need to be provided continuously in the diet.
- **Endogenous and Exogenous Vitamin Sources:**
 - While poultry can produce certain vitamins endogenously, particularly vitamin C and some B vitamins through microbial synthesis in the digestive tract, it's often insufficient to meet their complete nutritional needs.

- **Feed Ingredients as Vitamin Sources:** Some vitamins are naturally present in feed ingredients. For example, alfalfa meal and distillers' dried solubles contain B vitamins and may contribute to the overall vitamin content of the diet. However, levels can vary significantly based on processing and storage conditions.
- **Vitamin Premix for Consistency:**
 - A **vitamin premix** is typically included in poultry diets to ensure consistent vitamin intake, compensating for the variability in vitamin content of natural feed ingredients. Premixes are formulated to provide the optimal levels of vitamins needed for growth, reproduction, and health.

10 Common Poultry Feed Ingredients and Their Recommended Inclusion Levels

Below is the list of common poultry feed ingredients, including their general inclusion rates and safe limits for use in poultry feed formulations. The actual proportions can vary based on poultry type (broilers, layers, breeders) and production stage (starter, grower, finisher). Note that ingredient availability, nutrient composition, and cost can also influence ingredient usage. Safe minimum and maximum ranges are essential for balancing nutrition and preventing toxicity or health issues. Here's a comprehensive list of commonly used poultry feed ingredients, categorized into animal and plant protein sources, along with their safe minimum and maximum inclusion levels in feed formulation. I've also added additional details to aid in ration formulation.

10.1 Animal Protein Sources

Animal protein sources provide essential amino acids, vitamins, and minerals but must be carefully monitored to avoid imbalances in nutrients and excessive levels of heavy metals.

Ingredient	Safe Minimum (%)	Safe Maximum (%)	Purpose	Notes and Safe Usage
Fish Meal	2	10	High-quality protein, omega-3	Ensure quality control to avoid spoilage and rancidity. High in phosphorus.
Meat and Bone Meal	0	5	Protein and calcium source	Provides phosphorus and calcium but has variable protein quality. Limit to avoid imbalances in non-layers.
Blood Meal	0	3	Protein, high lysine content	Use with caution due to high protein concentration. Limit to avoid palatability issues.
Feather Meal	0	5	Protein, primarily keratin	High in cysteine but low in digestibility unless hydrolyzed.
Poultry By-product Meal	0	10	Protein, vitamins, minerals	Quality depends on source; limit due to high ash content.
Dried Whey	0	5	Lactose, protein source	Rich in lactose but limited use in poultry, as adult birds lack lactase enzyme.
Shrimp/Crab Meal	0	5 16	Protein, chitin source	High-quality protein; chitin has health benefits but use sparingly.

10.2 Plant Protein Sources

Plant proteins are widely used in poultry feed, providing essential amino acids like methionine and lysine. Many plant protein sources need processing to remove antinutritional factors.

Ingredient	Safe Minimum (%)	Safe Maximum (%)	Purpose	Notes and Safe Usage
Soybean Meal	15	35	Protein source, high lysine	Widely used; requires heat treatment to deactivate antinutritional factors.
Canola Meal	0	10	Protein source, moderate lysine	Limit due to glucosinolates, which can impair thyroid function.
Sunflower Meal	0	10	Protein source, rich in fiber	High fiber limits use in young chicks but is suitable for layers.
Cottonseed Meal	0	5	Protein source, high fiber	Use cautiously due to gossypol content, which can be toxic.
Peanut Meal	0	5	Protein source	Limited by aflatoxin risk; high lysine but lacking in methionine.
Sesame Meal	0	5	Protein source, high methionine	Use for balancing amino acid profile.
Alfalfa Meal	0	5	Protein and vitamins	Rich in fiber and beta-carotene; limit for young birds.
Corn Gluten Meal	0	10 18	Protein and energy source	High methionine: bright yellow color but limit due to low lysine.

10.3 Energy Sources

Energy sources are crucial for supporting the high metabolic needs of poultry, especially in growth and egg production.

Ingredient	Safe Minimum (%)	Safe Maximum (%)	Purpose	Notes and Safe Usage
Corn/Maize	30	60	Primary energy source	Avoid mycotoxins; easy to digest.
Wheat	10	50	Energy and protein	Limit due to potential gut viscosity; enzymes may improve digestibility.
Barley	0	15	Energy, fiber source	Use with enzyme supplements to prevent gut issues.
Sorghum	0	30	Energy, heat-tolerant crop	Lower energy than corn; no antinutritional factors but can vary in quality.
Oats	0	10	Energy, high fiber	High fiber limits use in broilers; suitable for layers in moderation.
Rice Bran	0	10	Energy, protein, fiber	High in fat; limit to prevent rancidity and high fiber.
Vegetable Oils	1	5	High-energy source	Added for extra energy; requires antioxidants to prevent rancidity.

10.4 Minerals and Additives

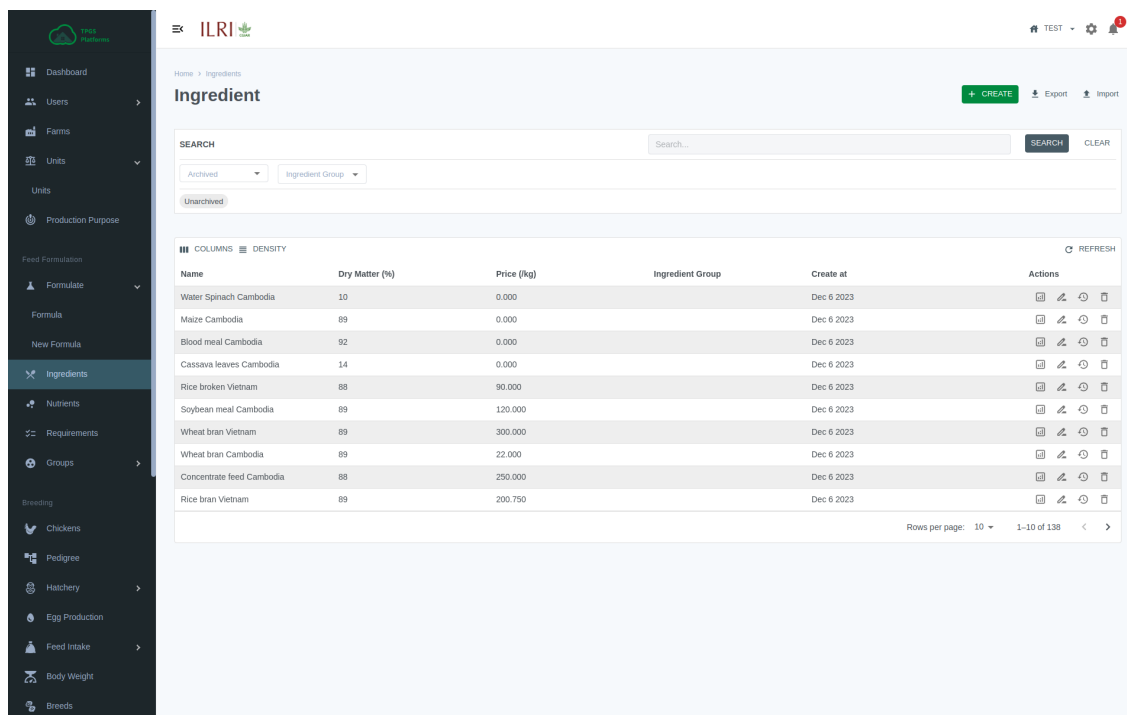
Mineral sources are essential for skeletal health, eggshell formation, and metabolic functions. Additives like enzymes and antioxidants improve feed quality.

Ingredient	Safe Minimum (%)	Safe Maximum (%)	Purpose	Notes and Safe Usage
Limestone	0.5	7	Calcium source	Essential for layers; lower levels for broilers.
Dicalcium Phosphate	0.5	2	Phosphorus source	Crucial for bone health; ensure proper balance with calcium.
Salt (NaCl)	0.25	0.5	Electrolyte balance	Essential but avoid excessive levels to prevent toxicity.
DL-Methionine	0.1	0.3	Essential amino acid	Balances amino acid profile, improves growth.
Lysine	0.05	0.3	Essential amino acid	Improves protein quality in feed.
Enzyme Additives	0	0.1	Digestibility enhancer	Particularly useful with wheat or barley-based diets.
Antioxidants	0	0.05	Preserve feed quality	Added to prevent fat rancidity.
Coccidiostats	0	0.05	Disease prevention	Commonly used to prevent coccidiosis in broilers.

11 Ingredient

11.1 View Ingredient List

1. Inorder to access list of ingredient click on **"Ingredients"** menu from the sidebar.



Name	Dry Matter (%)	Price (kg)	Ingredient Group	Create at	Actions
Water Spinach Cambodia	10	0.000		Dec 6 2023	[Edit] [Delete] [Duplicate]
Maize Cambodia	89	0.000		Dec 6 2023	[Edit] [Delete] [Duplicate]
Blood meal Cambodia	92	0.000		Dec 6 2023	[Edit] [Delete] [Duplicate]
Cassava leaves Cambodia	14	0.000		Dec 6 2023	[Edit] [Delete] [Duplicate]
Rice broken Vietnam	88	90.000		Dec 6 2023	[Edit] [Delete] [Duplicate]
Soybean meal Cambodia	89	120.000		Dec 6 2023	[Edit] [Delete] [Duplicate]
Wheat bran Vietnam	89	300.000		Dec 6 2023	[Edit] [Delete] [Duplicate]
Wheat bran Cambodia	89	22.000		Dec 6 2023	[Edit] [Delete] [Duplicate]
Concentrate feed Cambodia	88	250.000		Dec 6 2023	[Edit] [Delete] [Duplicate]
Rice bran Vietnam	89	200.750		Dec 6 2023	[Edit] [Delete] [Duplicate]

Figure 1: Ingredients List

1. Filter the list of ingredients by using the **"SEARCH"** card.

11.2 Create new Nutrient

1. To create new ingredient click on **"Create"** from Ingredients page [20](#)
1. Input the necessary information about the ingredient and click on **"CREATE"** button
1. After the ingredient is created, a **"COMPOSITION"** will appear at the top.
1. Set ingredient's composition by clicking **"Add New"** and choosing the type of nutrient.

Home > Ingredients > 669 > Edit

< Water Spinach Cambodia - Edit

DETAIL COMPOSITION 3

Ingredient Detail

Name	Water Spinach Cambodia	Code	Code
Ingredient Group		Unit Price (kg)	0.000 kg
Dry Matter (%)	10 %	Description	Description

UPDATE CANCEL

Histories
Active changes made.

VIEW

Archive
Change the visibility of the record.

ARCHIVE

Delete
Once you delete this record, there is no recovering it.

DELETE

Figure 2: Create new Nutrient

1. To set value to nutrient double click on value column to corresponding row, the value will be automatically saved once you are done editing.

12 Sign Up

1. Access the website refer to [12](#). If you already have an account login by following [section 13](#).
2. Enter the required information (Full name, Email address & message), Click "Submit" and wait for email response.

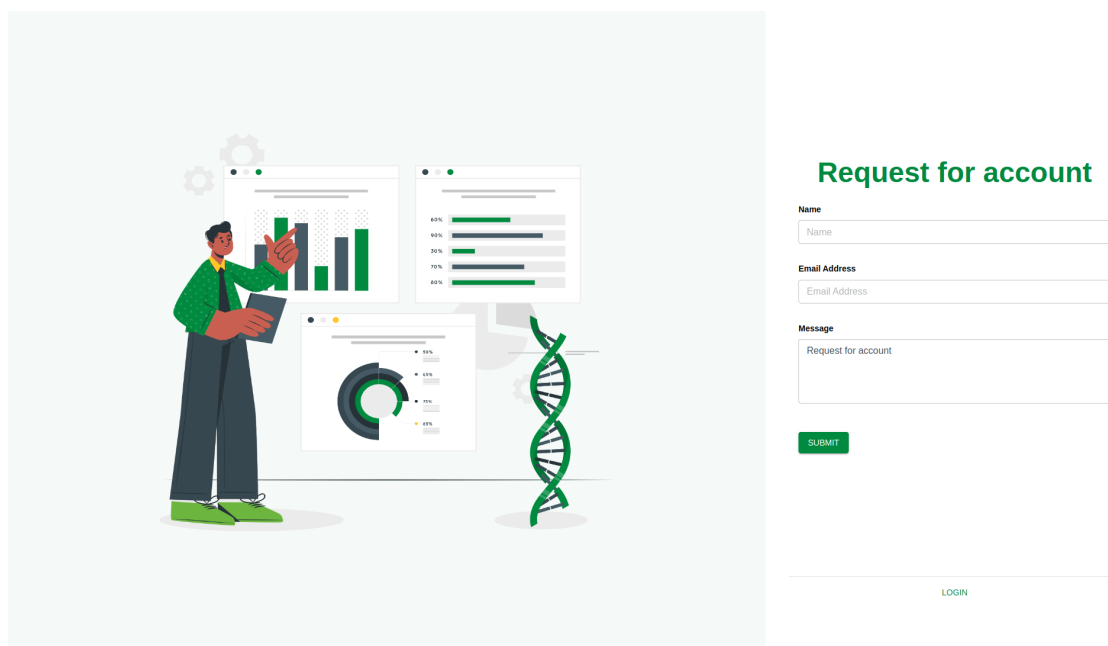


Figure 3: Sign up page

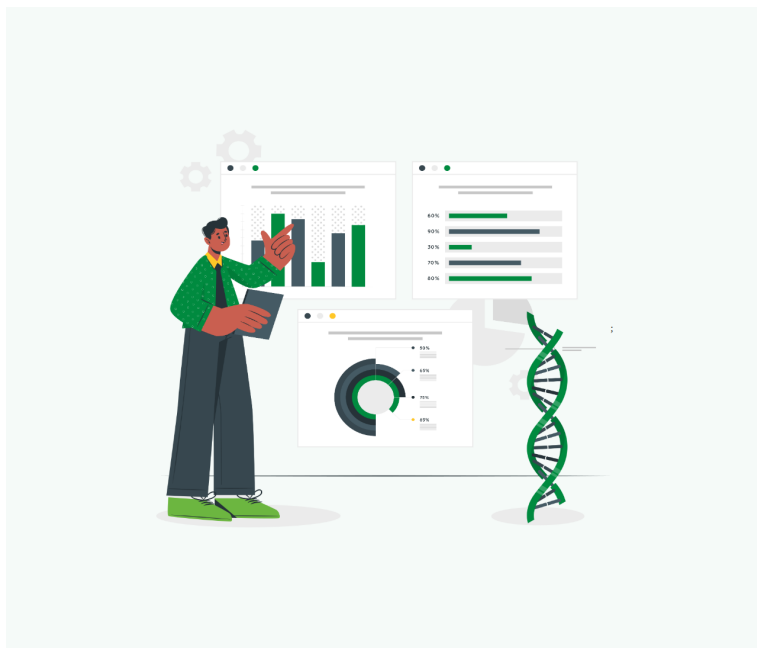
3. Go to your email inbox to create new account.




Haven't received invitation email?

You will only receive an invitation email address, if the request is approved by admins. For further detail contact support [support address 13](#)

Click "Join" and you will be redirected to account creation page. Enter the required fields and click "**CREATE NEW ACCOUNT**".



ILRI 
CGIAR

Join via invitation

Email *

Full name *

Password *

Confirm Password *

Country

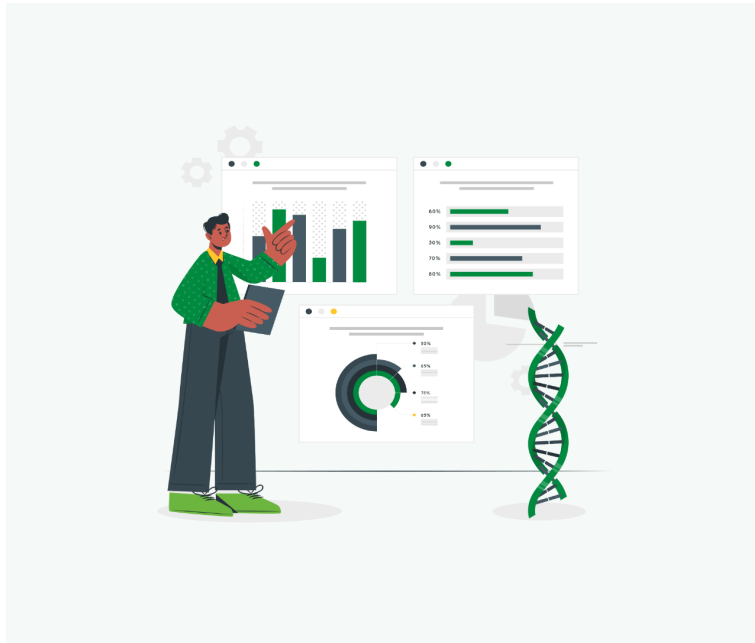
Company


[CREATE NEW ACCOUNT](#)

[LOGIN](#)

Figure 4: Verify Invitation Page

13 Login



ILRI  **CGIAR**

Login in to your account

Email Address

Password

[Forgot Password?](#)

SIGN IN

[SIGN UP](#)

Figure 5: Login Page

14 Forgot Password

There are two ways you can reset your password, you can use "Group"

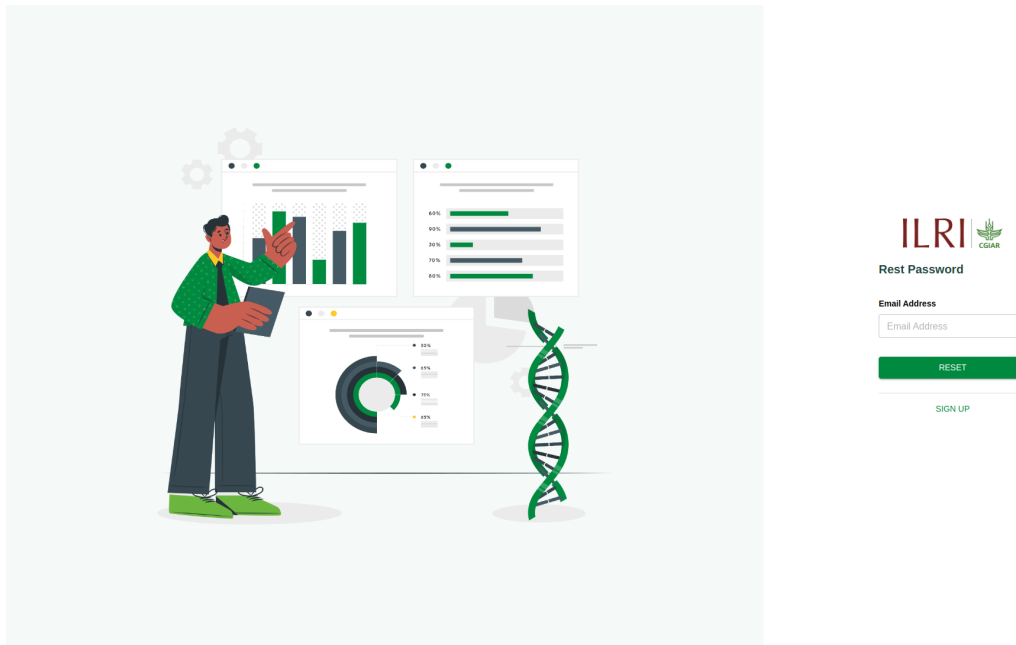


Figure 6: Forgot Password Page

14.1 Reset password before logged in

SS

(1)

14.2 Reset password after logged in

15 First View

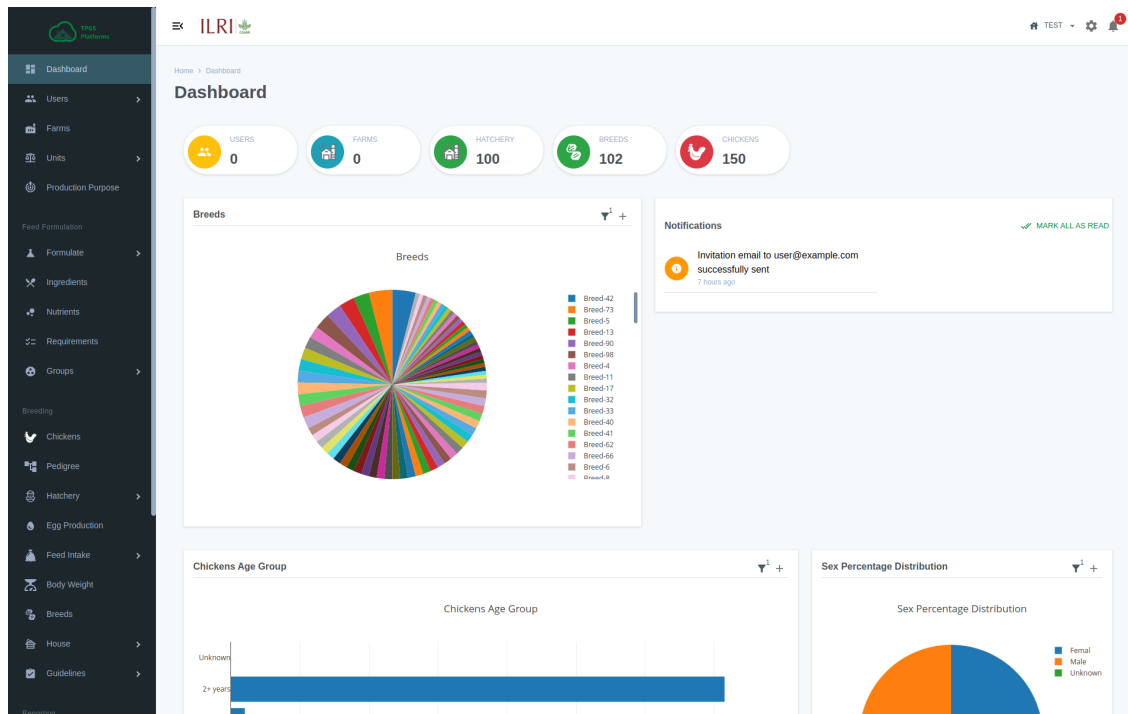


Figure 7: Dashboard Page

16 Manage Farm

Switch farm either by going to **Farms** menu or by click on top right farm menu.

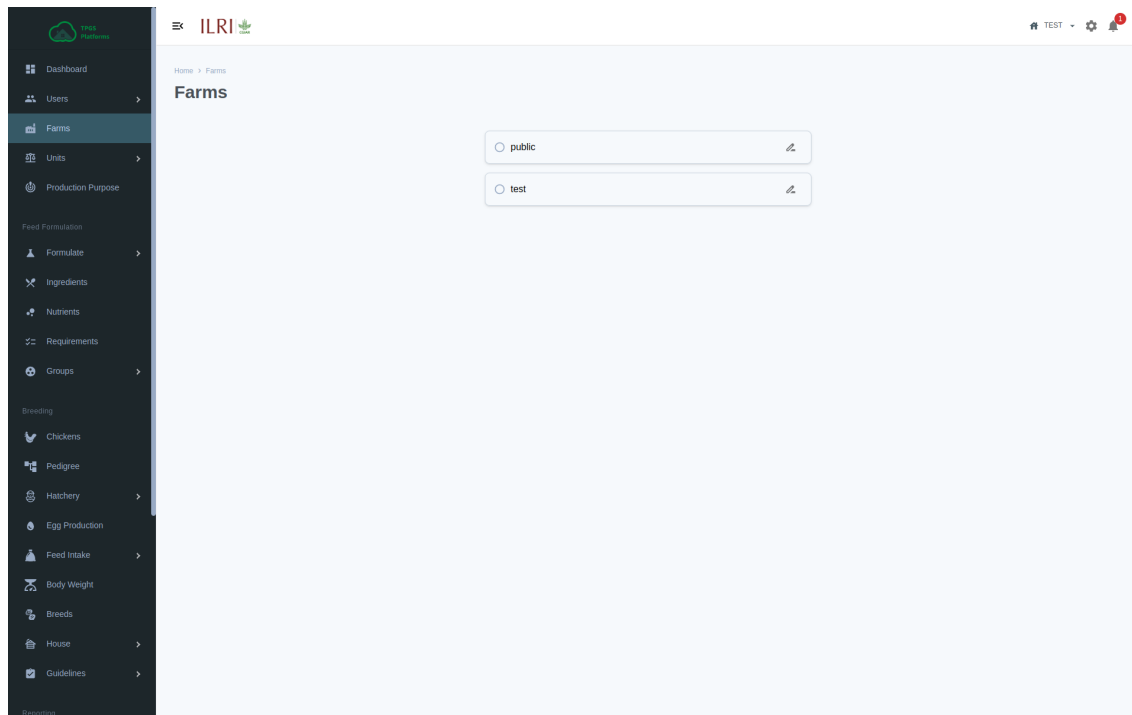


Figure 8: Switch Farm

17 How to formulate a ration

17.1 View Nutrient List

1. On left sidebar menu click **Formulate** then select **New Formula** menu, then you will be redirect to Ration Formulation page.

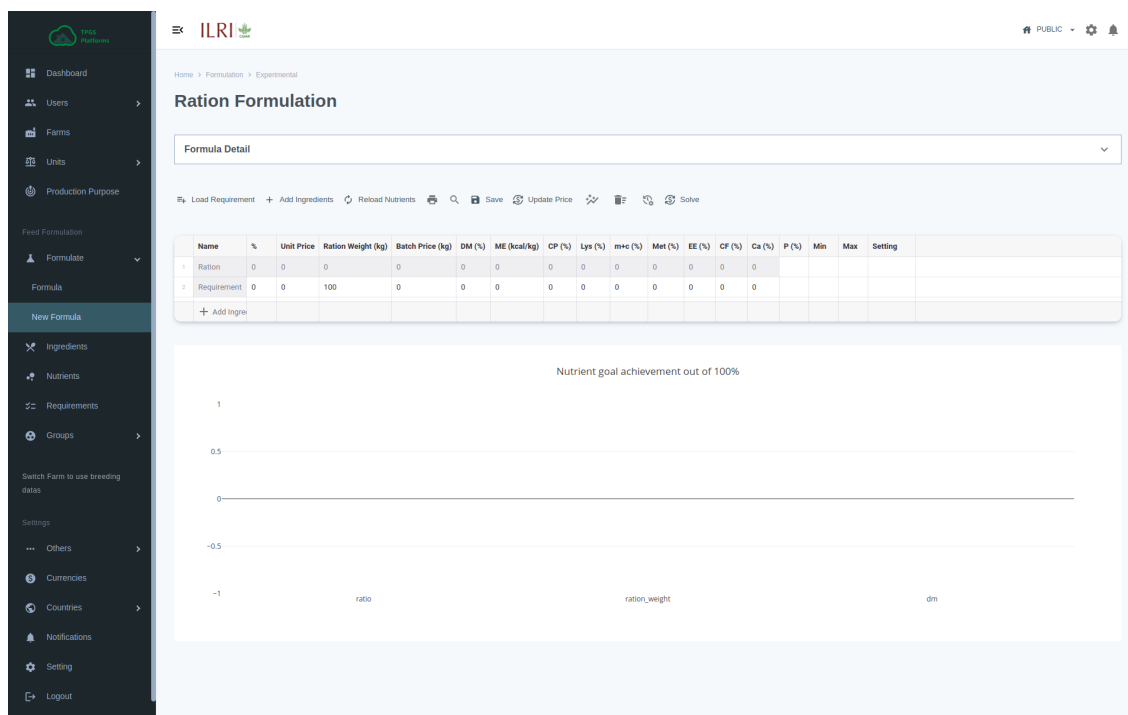


Figure 9: Ration Formulation page

1. Select the type of ration you want to prepare by clicking on **Load Requirement**
1. Click **Add Ingredients** to include the required ingredients.
1. If the ingredient you want to include in you ration is not available Refere to [11.2](#)
1. Formulate your ration ingredient type - % per 100 kg, price (current price)
1. Print or save (to keep it as an archive)

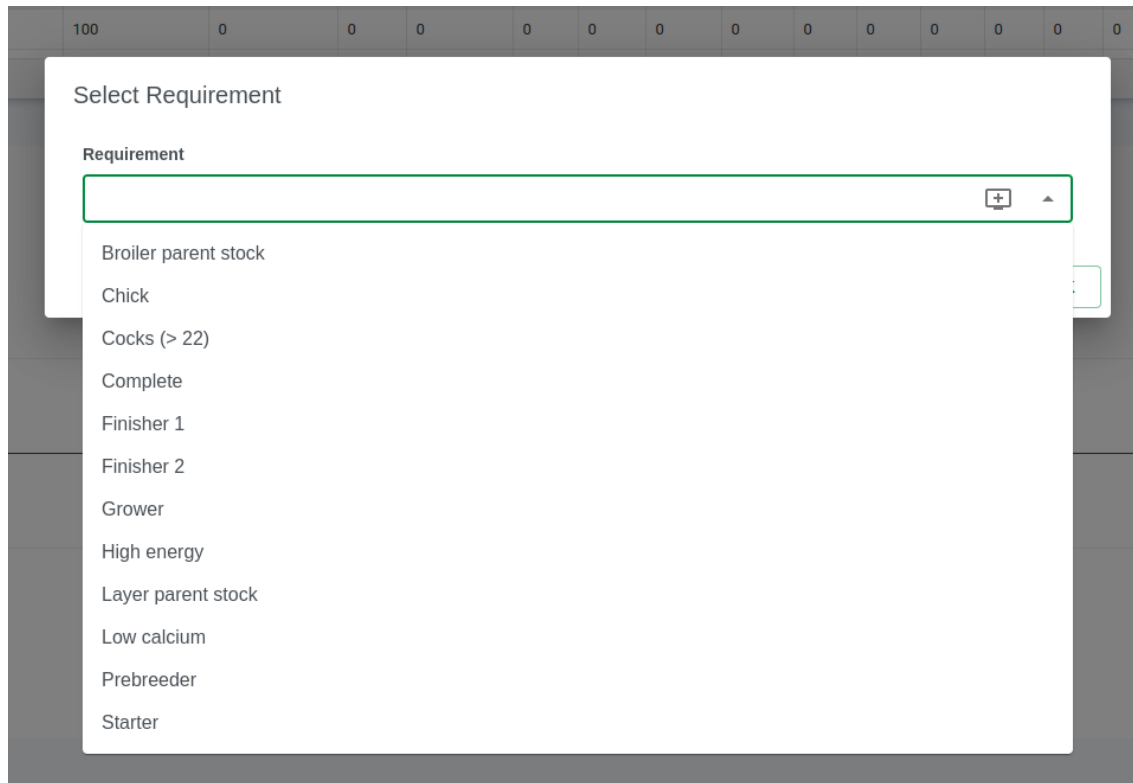


Figure 10: Load Requirement

1. To update the ingredients with the current price click “Update price”
Remark: If you want to do further analysis on formulated ration click the graph icon

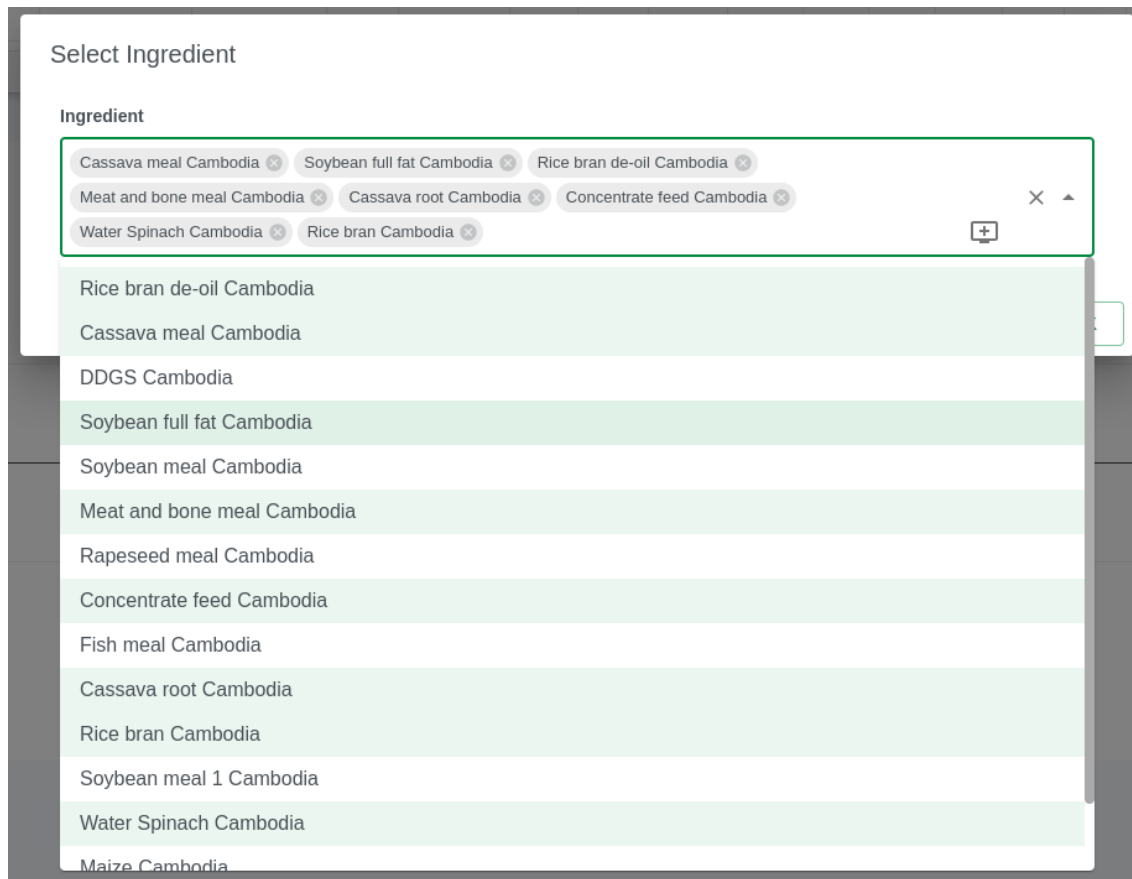


Figure 11: Select multiple ingredients

18 Unit

18.1 View Unit List

1. Click on "Unit"

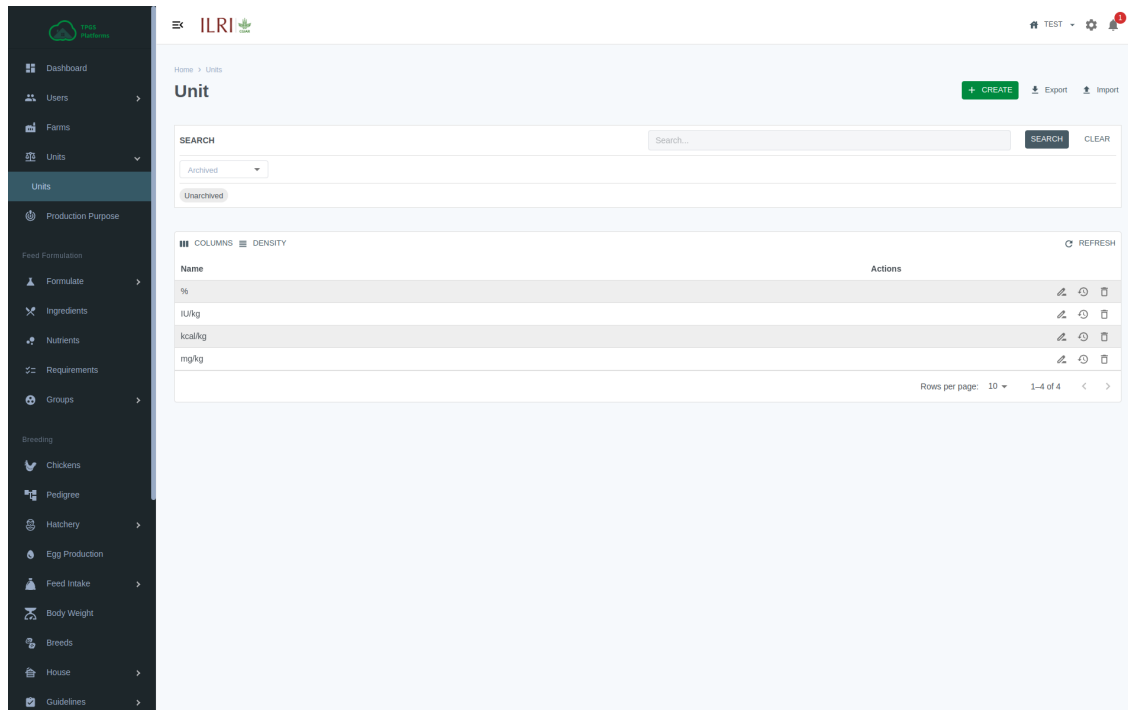


Figure 12: Unit List

18.2 Archive Records

1. On filter section filter the records by archive.

18.3 Create new Unit

1. To create new unit click on "Create" Refer [Figure 12](#) And click "CREATE", you will be redirect to [Section 18.1](#)

18.4 Edit Unit

1. Go to the Unit [Refer to Section 18.1](#), then click on Pencil icon and it will redirect to the [Figure 15](#).

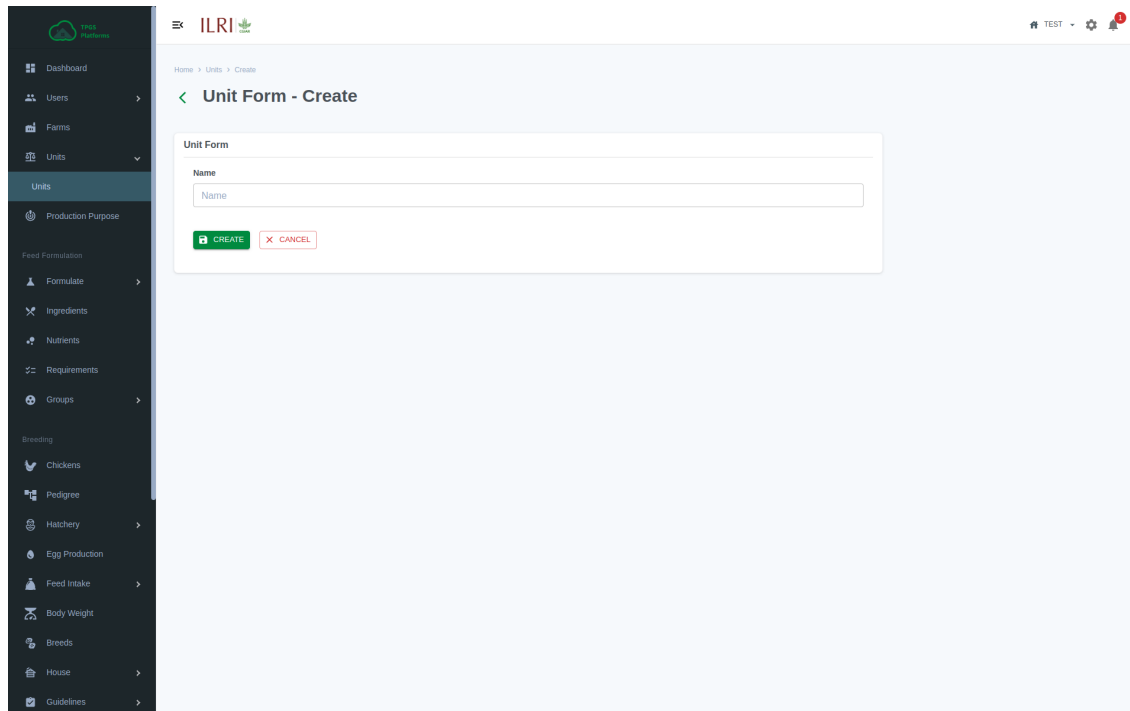



Figure 13: Create new Nutrient Group

18.5 Delete Unit

1. Go to the edit Unit [Refer to Section 18.4](#).
1. To archive the record click on "Archive". If you want to bring back the record/unarchive follow the step under [Section 18.2](#), and click on "UnArchive"
1. To permanently delete the record click on "Delete".



Dashboard

Users

Farms

Units

Units

Production Purpose

Feed Formulation

Formulate

Ingredients

Nutrients

Requirements

Groups

Breeding

Chickens

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Hatchery

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Breeds

House

Guidelines

Home > Units > 5 > Edit

< kcal/kg - Edit

Unit Form

Name

kcal/kg

UPDATE

CANCEL

Date Created

Dec 6 2023

Created by

unknown

Last updated

Dec 6 2023

Last Updated by

Admin

Histories

1 Changes

Histories

Active changes made.

VIEW

Archive

Change the visibility of the record.

ARCHIVE


Delete

Once you delete this record, there is no recovering it.

DELETE

Figure 14: Edit Unit

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Home > Units > 5 > Edit

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Name

kcal/kg

UPDATE

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Date Created

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Created by

unknown

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Admin

Histories

1 Changes

Histories

Active changes made.

VIEW

Archive

Change the visibility of the record.

ARCHIVE

Delete

Once you delete this record, there is no recovering it.

DELETE

Figure 15: Edit Unit

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19 Nutrient Groups

19.1 View Nutrient Group List

1. Expand "Group" menu and click on "Nutrient Group"

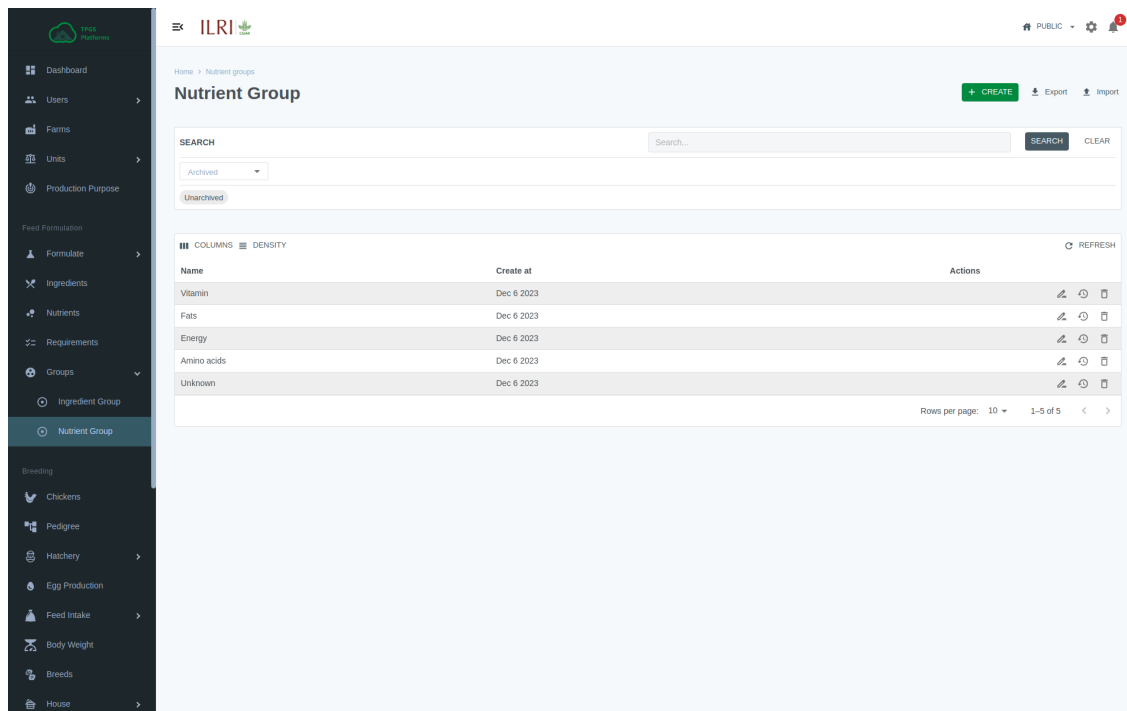


Figure 16: Nutrient Group List

19.2 Archive Records

1. On filter section filter the records by archive.

19.3 Create new Nutrient Group

1. To create new nutrient group click on "Create" Refer from nutrient list Figure 16 And click "CREATE", you will be redirect to Nutrient List section 19.1

19.4 Edit Nutrient Group

1. Go to the Nutrient Group Refer to Section 19.1, then click on Pencil icon and it will redirect to the Figure 19.

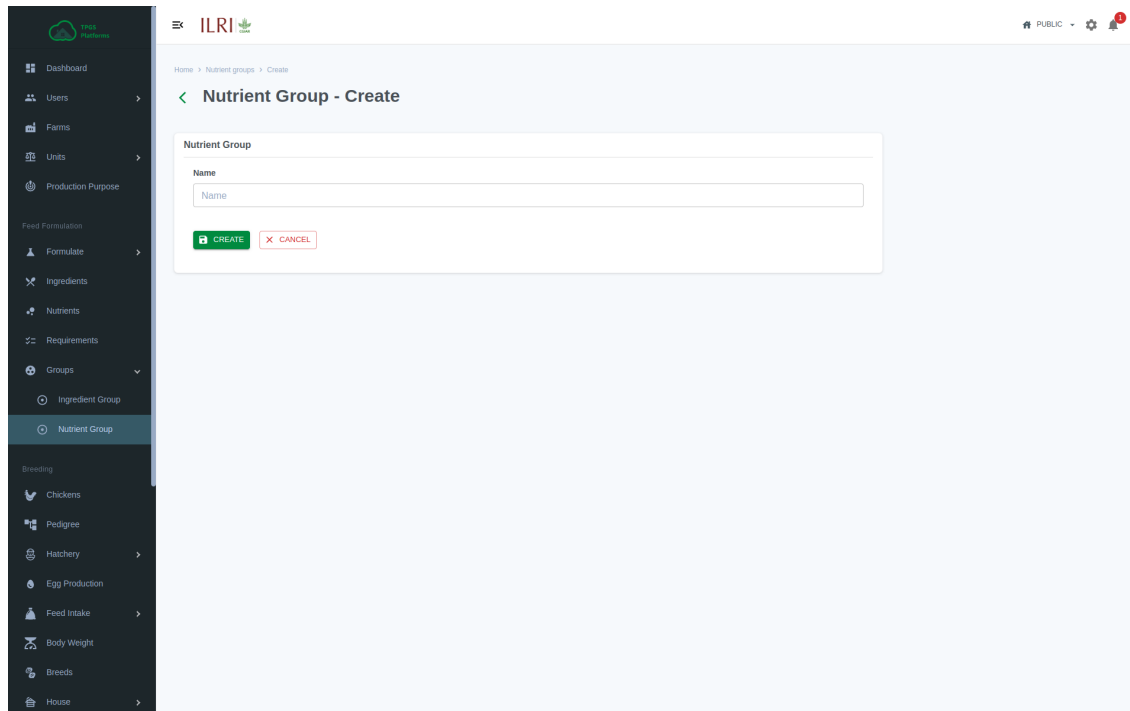


Figure 17: Create new Nutrient Group

19.5 Delete Nutrient Group

1. Go to the edit Nutrient Group [Refer to Section 19.4](#).
1. To archive the record click on "Archive". If you want to bring back the record/unarchive follow the step under [Section 19.2](#), and click on "UnArchive"
1. To permanently delete the record click on "Delete".

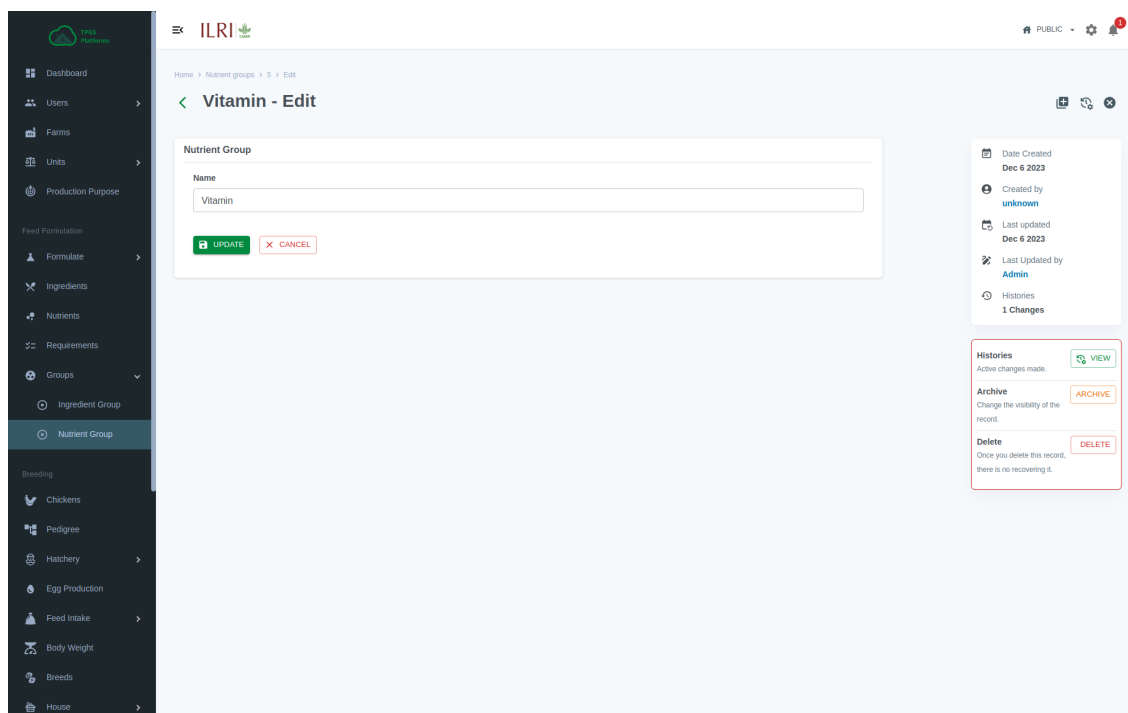


Figure 18: Edit Nutrient Group

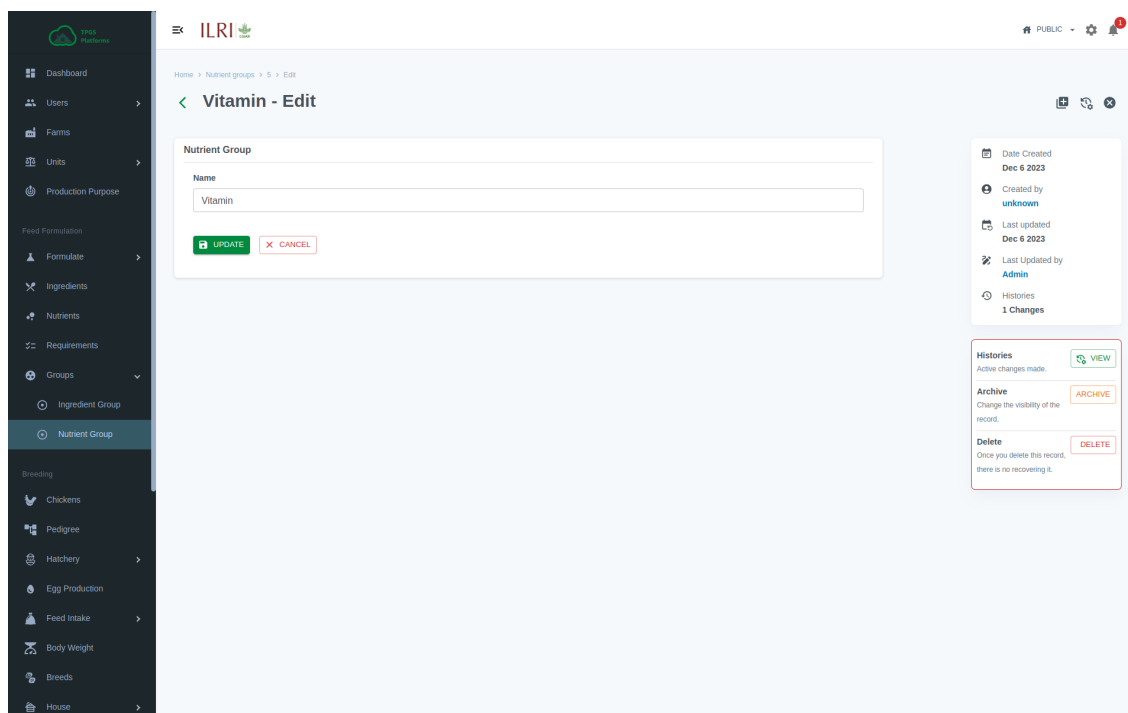
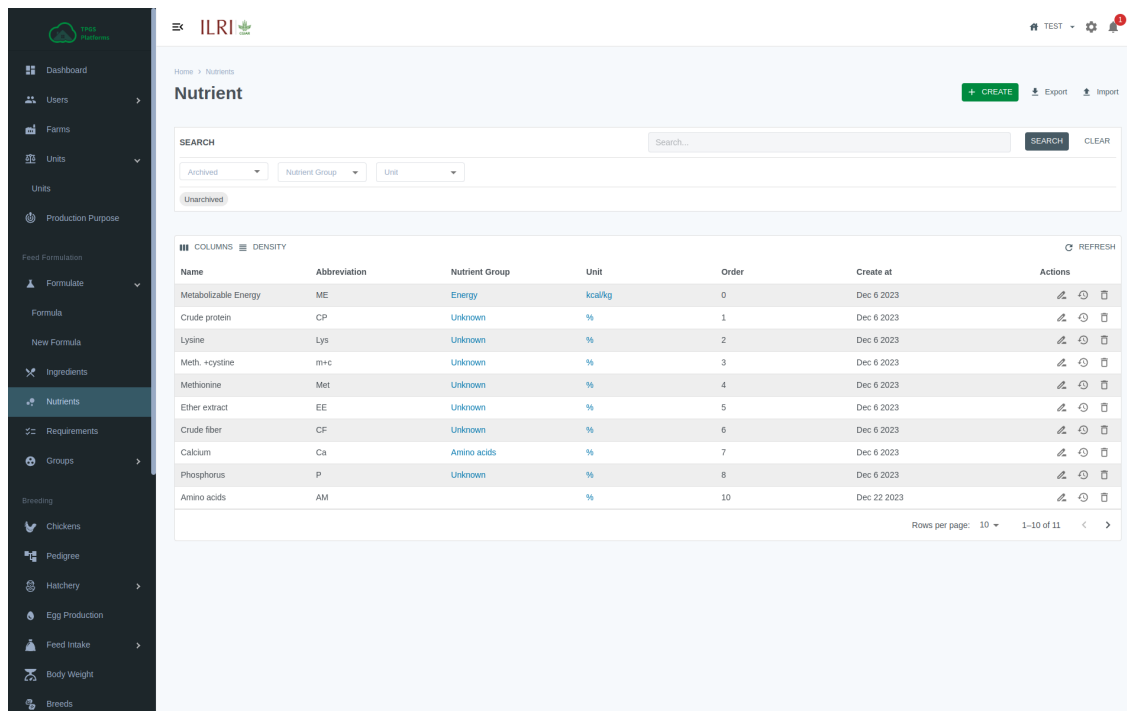


Figure 19: Edit Nutrient Group

20 Nutrient

20.1 View Nutrient List

1. Expand "Group" menu and click on "Nutrient "



Home > Nutrients

Nutrient

+ CREATE Export Import

SEARCH Search... SEARCH CLEAR

Archived Nutrient Group Unit

Unarchived

Name	Abbreviation	Nutrient Group	Unit	Order	Create at	Actions
Metabolizable Energy	ME	Energy	kcal/kg	0	Dec 6 2023	
Crude protein	CP	Unknown	%	1	Dec 6 2023	
Lysine	Lys	Unknown	%	2	Dec 6 2023	
Meth. +cystine	MEC	Unknown	%	3	Dec 6 2023	
Methionine	Met	Unknown	%	4	Dec 6 2023	
Ether extract	EE	Unknown	%	5	Dec 6 2023	
Crude fiber	CF	Unknown	%	6	Dec 6 2023	
Calcium	Ca	Amino acids	%	7	Dec 6 2023	
Phosphorus	P	Unknown	%	8	Dec 6 2023	
Amino acids	AM		%	10	Dec 22 2023	

Columns: COLUMNS DENSITY REFRESH

Rows per page: 10 1-10 of 11

Figure 20: Nutrient List

20.2 Archive Records

1. On filter section filter the records by archive.

20.3 Create new Nutrient

1. To create new nutrient group click on "Create" Refer from nutrient list Figure 20 And click "CREATE", you will be redirect to Nutrient List section 20.1

20.4 Edit Nutrient


1. Go to the Nutrient Refer to Section 20.1, then click on Pencil icon and it will redirect to the Figure 23.

The screenshot displays the 'Nutrient Form - Create' interface. On the left is a dark sidebar with a list of navigation items. The main area has a light blue background with a white form titled 'Nutrient Form'. The form contains six input fields arranged in two columns: 'Name', 'Abbreviation', 'Nutrient Group' (a dropdown), 'Unit' (a dropdown), 'Description', and 'Order'. At the bottom of the form are two buttons: a green 'CREATE' button and a red 'CANCEL' button. The top of the page shows the ILRI logo and a breadcrumb trail: 'Home > Nutrients > Create'.

Figure 21: Create new Nutrient

20.5 Delete Nutrient

1. Go to the edit Nutrient [Refer to Section 20.4](#).
1. To archive the record click on "Archive". If you want to bring back the record/unarchive follow the step under [Section 20.2](#), and click on "UnArchive"
1. To permanently delete the record click on "Delete".



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Home > Nutrients > 12 > Edit

ME (kcal/kg) - Edit

Name

Metabolizable Energy

Abbreviation

ME

Nutrient Group

Energy

Unit

kcal/kg

Description

Description

Order

0

UPDATE

CANCEL

Date Created

Dec 6 2023

Created by

unknown

Last updated

Dec 6 2023

Last Updated by

Admin

Histories

1 Changes

Histories

Active changes made.

VIEW

Archive

Change the visibility of the record.

ARCHIVE


Delete

Once you delete this record, there is no recovering it.

DELETE

Figure 22: Edit Nutrient

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Breeds

Home > Nutrients > 12 > Edit

ME (kcal/kg) - Edit

Name

Metabolizable Energy

Abbreviation

ME

Nutrient Group

Energy

Unit

kcal/kg

Description

Description

Order

0

UPDATE

CANCEL

Date Created

Dec 6 2023

Created by

unknown

Last updated

Dec 6 2023

Last Updated by

Admin

Histories

1 Changes

Histories

Active changes made.

VIEW

Archive

Change the visibility of the record.

ARCHIVE

Delete

Once you delete this record, there is no recovering it.

DELETE

Figure 23: Edit Nutrient

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21 Contact Info

For further information contact W.Esatu@cgiar.org

22 Reference

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