Veterinarian Voice





Chicken Meat:
A Nutritious Solution for India's Malnutrition Challenge

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EVOLUTION - BROILERS
A View - Past, Present & Future

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PFRC POULTRY FARMERS REGULATORY COMMITTEE

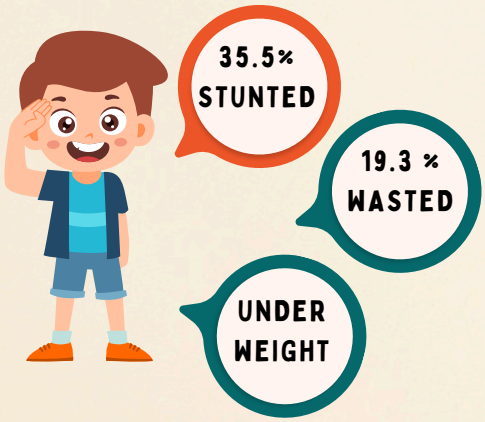
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CHICKEN MEAT: A NUTRITIOUS SOLUTION FOR INDIA`S MALNUTRITION CHALLENGE

India faces a significant burden of malnutrition, a complex issue rooted in social, economic, and cultural factors. This multifaceted problem demands urgent attention to prevent further deterioration of nutritional indicators.
Chicken meat, a rich source of protein and essential nutrients, offers a promising solution to address the country's malnutrition crisis.



A significant portion of Indian children under five years of age suffer from malnutrition



These alarming statistics underscore the urgent need for effective interventions.

UNDERSTANDING MALNUTRITION

Malnutrition, as defined by the World Health Organization (WHO), encompasses deficiencies, excesses, or imbalances in a person's intake of energy and nutrients. It can manifest in various forms, including:

- Undernutrition: This includes conditions like wasting (low weight-for-height) and stunting (low height-for-age), often caused by insufficient calorie intake.
- Micronutrient-related malnutrition: Deficiencies in essential vitamins and minerals such as vitamin A, iron, and iodine can lead to severe health consequences.

The Role of Protein in Nutrition

Protein is a vital macronutrient essential for growth, development, and tissue repair. While both plant and animal sources can provide protein, animal proteins are generally considered complete proteins, containing all nine essential amino acids.

Chicken meat, a readily available and affordable animal protein source, offers a comprehensive package of nutrients.

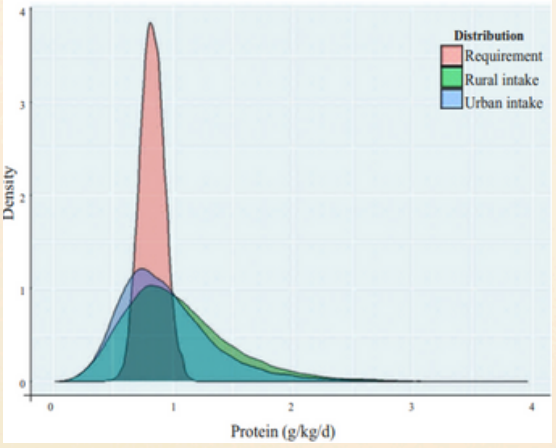
Protein intake in India - According to the National Family Health publication of What India Eats, 2020

Protein Deficiency in Rural Areas: A significant portion of the rural population is consuming protein below the recommended level. This suggests a widespread prevalence of protein deficiency in rural areas.

Urban-Rural Disparities: The urban population generally consumes more protein than the rural population, indicating a disparity in protein intake between these two groups.

Need for Nutritional Interventions:

The data highlights the need for targeted interventions to improve protein intake, especially in rural areas. This could involve promoting dietary diversification, providing nutritional education, and increasing access to affordable protein sources.



CHICKEN MEAT IS A RICH SOURCE OF



- **High-quality protein: Essential for building and repairing tissues.**
- **Essential vitamins and minerals: Including B vitamins, iron, zinc, and selenium.**
- **Low in fat and cholesterol: Making it a healthier choice compared to red meat.**
- **Affordable and accessible: Widely available across India.**

PROMOTING CHICKEN CONSUMPTION CAN PLAY A SIGNIFICANT ROLE IN ADDRESSING INDIA`S MALNUTRITION CHALLENGE BY



Improving protein intake: Providing a readily available and affordable source of complete protein.



Enhancing micronutrient status: Offering essential vitamins and minerals.



Supporting growth and development: Contributing to healthy growth and development in children.

Improving overall health: Reducing the risk of chronic diseases associated with malnutrition.



CHICKEN CONSUMPTION = INDIA`S MALNUTRITION

CHICKEN MEAT PRESENTS A VIABLE AND EFFECTIVE SOLUTION TO COMBAT MALNUTRITION IN INDIA.

Its nutritional value, affordability, and accessibility make it an ideal protein source for individuals of all ages.

By supporting the chicken consumption and addressing underlying social, economic, and cultural factors, India can make significant progress in improving the nutritional status of its population and building a healthier nation.



EVOLUTION - BROILERS

A VIEW - PAST, PRESENT & FUTURE

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POULTRY MEAT

is an affordable, lean source of animal protein. Broilers (meat chickens) raised on farms stem from core breeding families, which are crossed to generate commercial hybrids. It takes around four years for the birds from the core families to the birds on the farms.

Over time, poultry breeding has developed from primarily looking at production (e.g., live weight and egg production) to balanced, holistic breeding, including a wide range of attributes (e.g., gait, leg health, robustness and cardiovascular health). All birds in the core breeding families are carefully measured for over forty items covering bird health and welfare, robustness, environmental impact, reproduction and production.

HISTORY OF COMMERCIAL POULTRY BREEDING

- Poultry is an affordable meat in most of the regions of the world.
- The combined efforts of the poultry sector, coupled with technological and management improvements in a wide range of areas (e.g., poultry health, welfare, nutrition and housing), and particularly poultry breeding advances, have created a world where poultry is now an accessible meat for most of the global population.
- Poultry meat is expected to account for 41% of the protein consumed from all meat sources in 2032, followed by pig, bovine and ovine meat.
- Poultry production is generally considered more efficient and less resource-intensive, making it a more environmentally sustainable choice of meat.

NO GENETIC MODIFICATIONS
NO ARTIFICIAL METHODS

New and improved selection techniques and analytical tools are continuously developed to allow increases in the accuracy of selection's long-term progress. There are different broiler genotypes for different market requirements, and commercial portfolios will continue evolving with future markets and customer preferences.





NO HORMONE INJECTION

During the last half century, the genetic improvement in broiler chicken breeds has resulted in good health, welfare and sustainability alongside increased productivity and robustness across a wide range of production conditions worldwide.

DOMESTICATION OF POULTRY

- The first steps in poultry farming and selection were made when poultry species were domesticated from their wild ancestors thousands of years ago.
- Chickens originated from the Red Jungle Fowl (Gallus gallus).
- Domestication occurred at least twice in different regions: the Indus Valley in the Harappan culture 2500 years B.C.E., and at Neolithic sites in Northern China, where there are reports of much older chicken remains (<6000 B.C.E.).

Domestic chickens initially derived from the RJF subspecies Gallus gallus spadiceus in Asia, translocated across Southeast and South Asia, and interbred with other jungle fowl species.

The genomes of modern chicken stocks used for meat production confirm the considerable role of heavy Asian breeds in modern broilers.

The process of domestication involved a number of genetic changes: amongst others, selection for reproduction in captivity, for tameness and for the ability to live in large, dynamic groups.

Over the last millennia, local varieties were established, with purposes ranging from fighting skills to egg laying or meat production.

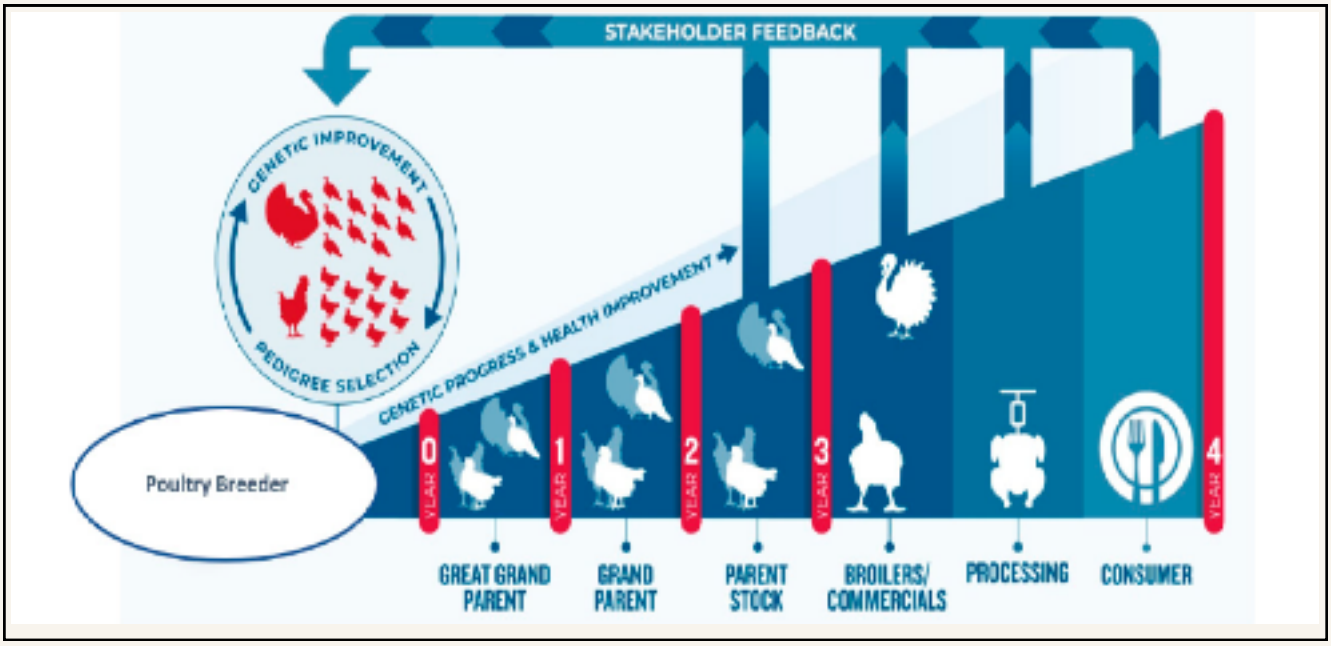
ORIGIN






The modern broiler originates from Cornish, Leghorn, New Hampshire/Rhode Island Red and Plymouth Rock poultry breeds, which were developed in the 19th century in Europe and North America.

Commercial chicken breeding has caused less than one-eighth of diversity reduction. Commercial breeding programs maintain effective population sizes to achieve inbreeding rates below 0.01 per generation. In the 20th century, major advances in quantitative genetics and its application to livestock breeding stimulated the organizational development and scientific advancements of poultry breeding.



CURRENT BROILER PRODUCTION STATUS IN INDIA

- As per the Government of India statistics, India stands 5th rank in world for chicken meat production.

Indian poultry market size in 2022

INR 1905.3 billion

Growth rate for Chicken meat (Industry Estimate)



7% - 8%

- Per capita egg consumption annually 101(DADF) and chicken meat 4.8/5 Kgs (on industry estimated placement of 500 crore DOC).
- The poultry sector directly employs around 25,000 layer farmers and over 1 million broiler farmers, while indirectly supporting over 5 million jobs.

According to the "National Action Plan for Eggs and Poultry", 30 million rural households are engaged in backyard poultry farming.

Over the last three decades, poultry product prices have seen the least increase compared to other food products.

Poultry farming has also helped maize and soya farmers secure better prices for their crops.

Total meat production in India for 2022-23

9.77 MMT

Poultry meat contribution

4.995 MMT

Total Egg Production in India for 2022-23

138.38 billion

Commercial Poultry Egg Production

118.16 billion

Backyard Poultry

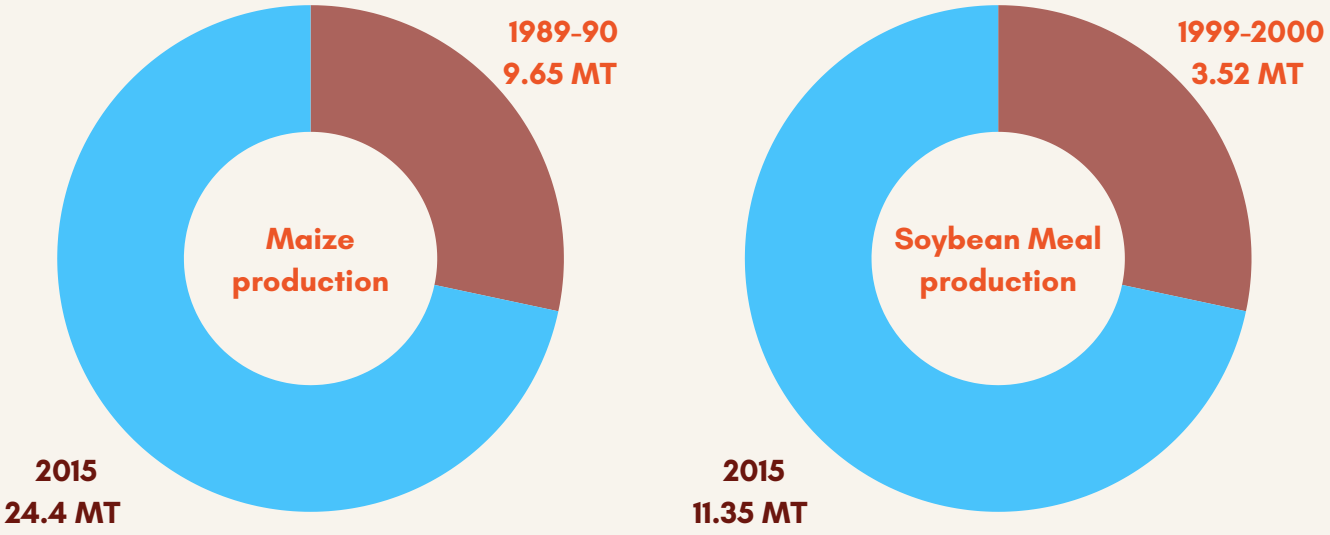
20.20 billion

FEED RESOURCES – DEMAND VS PRODUCTION VS ALTERNATIVES

- Success on poultry production is mainly depends on the quality of the bird employed, comforting environment and provision for good feed, the last being most expensive of all other inputs, deserves appropriate attention.
- Feed accounts for 65 - 70% of broiler and 75-80% of layer production cost. Maize is the popular cereal used in combination with protein meal like soybean meal which generally determines the cost of compounded feed.



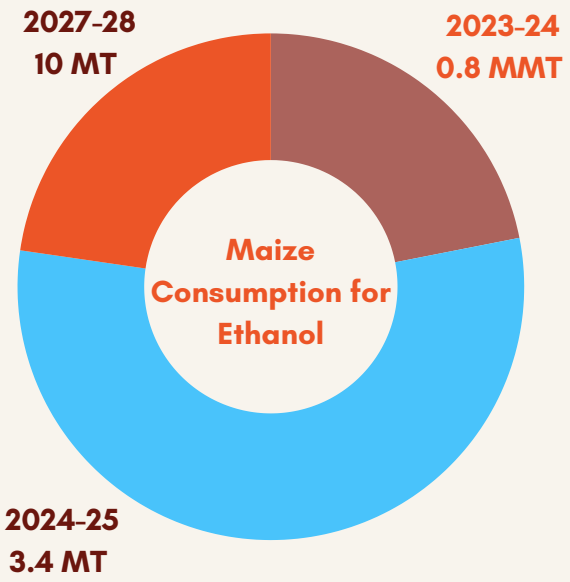
- Maize is the popular cereal used in combination with protein meal like soybean meal which generally determines the cost of compounded feed.



- Average increase in maize availability has been 3.8% per annum which is far below the growth rate of egg or meat production.
- Corn-Soya based diet is a promising tool for this tremendous growth in broiler production.
- Maize a promising ingredient for the broiler feed now becomes a challenge to the broiler feed industry due to the huge diversion of maize for commercial ethanol production.
- While the maize acreage and productivity is stagnant, the demand for corn by different users groups is steadily increasing leading to sky rocketing of corn prices

MAIZE FOR ETHANOL

- Government of Maize production 30/31MMT and per Ha productivity is 2.8 MMT as per industry.
- Government figures claim 34.6 MMT and productivity 3.4 T/Ha.
- Maize consumed for Ethanol 0.8 MMT is 2023-24, targeted 3.4 MMT in 2024-25 and 10 MMT by 2027-28.
- Government proposes to procure Maize at MSP rates and supply to Ethanol plants.
- Poultry needs 16 MMT of Maize in 2023 -24 and increases of 1 MMT per year for growth.



- Commodity finance at Bank interest enable corporates / big players by in season and stock for off season use thereby ensure maintain efficient cost of production.
- Government policy to use corn / broken rice for Ethanol production will lead to further shortage of cereals and corn availability and availability will be a major challenge for the growth of industry for the coming years.
- The non-availability of broken rice , Ragi , Jowar at affordable prices for Layer farmers is adding further demand for Maize and fueling the prices.
- Thus, there is a need to increase the production of maize and soybean or explores the usefulness of other alternate energy and protein rich feedstuffs to maize and soybean meal, respectively, in poultry diets.
- In view of the large gap between the demand and availability of feedstuffs for poultry production, a holistic approach is needed to meet the demand of ever-growing poultry industry.

Some of the approaches in these respects are

- Identification of newer feed resources
- Utilization of structural carbohydrates and phytate phosphorus
- Overcoming limitations of Agro- industrial byproducts and unconventional feed stuff

HEALTH CARE MEASURES OF THE BROILERS:

Management of diseases in broilers plays an important role for the progress of the industry. Broilers in the commercial farms are reared in open sided houses and maintained under optimum management conditions. Broilers are reared under veterinary supervision. Vaccination is regularly practiced to protect the broilers against diseases. In spite of all the measures, the Broiler industry in India suffered a major setback last year due to the outbreak of Poultry Respiratory diseases. The industry suffered serious trade losses following downfall in consumption of poultry meat and eggs for about 6 months.

To minimize the occurrence of disease in broilers the three most important components of disease control are



BIO SECURITY



VACCINATION



MEDICATION

BIO SECURITY

- Bio- security refers to all measures taken to secure prevention of all types of pathogens in poultry farms.
- Effective bio-security and implementation of successful hygienic procedures are increasingly dependent on Hazard Analysis Critical Control Point approach (HACCP).
- The principles of HACCP such as hazard analysis, critical control points, critical limits, correction, recording and verification should be strictly followed for analyzing risk assessment and risk management.

MEDICATION

Priorities for effective disease management in making the poultry industry a sustainable enterprise are

- Trans-boundary disease-This needs strict quarantine measures.
- Establishing and strengthening surveillance and monitoring system of infectious disease in poultry.
- Diagnoses through genomic approach for rapid and accurate diagnosis and effective control of poultry disease.

VACCINATION

Vaccines have played a crucial role in health, evolving from the idea of "Prevention is better than cure" to broader goals like "Eradication of Disease from Earth."

VACCINATION IN POULTRY

- In broiler poultry, vaccination is vital not only for the health and welfare of birds but also for food safety, benefiting consumers.
- The poultry industry has progressed from traditional live attenuated vaccines to advanced recombinant vaccines, aligning vaccination efforts with specific disease strains found through government and institutional disease surveillance.
- These tailored vaccines help establish robust immunity against prevalent regional viruses.

METHODS OF VACCINE ADMINISTRATION

- Common methods of administering poultry vaccines include eye drops, drinking water, and injections (intramuscular or subcutaneous).
- The spread of misinformation about vaccines, including allegations of harmful chemicals, poses a challenge to vaccination efforts.

DISEASE CONTROL AND ZONING

- Zoning, as per the World Organisation for Animal Health (OIE), is a key strategy for controlling and eradicating animal diseases. In India, the National Animal Disease Control Program certifies region-specific Disease-Free Zones, crucial for disease control and biosecurity.
- Effective mass vaccination and strict biosecurity protocols are instrumental in maintaining these zones.

IMPACT ON POULTRY INDUSTRY

- Advanced breeding, targeted vaccination, and biosecurity have enabled the poultry industry to establish disease-free flocks, which bolsters export opportunities by ensuring higher health standards in broiler birds.

This framework emphasizes how strategic vaccination and biosecurity practices not only protect animal welfare but also ensure food safety, support public health, and strengthen economic opportunities in agriculture.

POULTRY FARMERS REGULATORY COMMITTEE

Office Bearers

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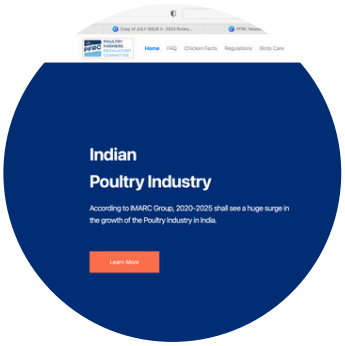
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