

**RESIDENTIAL WORKSHOP & TRAINING PROGRAMME**

# **THE INDIAN POULTRY SECTOR**

**How to scale up preventive approaches to minimise antibiotic use**



20 August 2025

AWAKENING - THE INDUSTRY PERSPECTIVE



# MINIMISING USE OF ANTIBIOTICS in POULTRY

## AN INDUSTRY PRESPECTIVE – A SCIENTIFIC & REGULATORY APPROACH

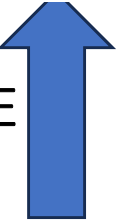








20 August 2025

AMR MITIGATION- THE INDUSTRY PRESPECTIVE

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Former Executive Director Ayurvet  
Limited

# WHY POULTRY: ANIMAL PROTEIN TO INCREASE DUE TO POPULATION & INCOME



Year	2020		2030
 Population	1.38 bn	+9% →	1.51 bn
 Per Capita Income (current prices)	1,994 USD	+59% →	3,166 USD
 Milk	210 mn MT	+34% →	281 mn MT
 Eggs	118 bn	+105% →	242 bn
 Chicken (year)	5.2 bn MT	+90% →	9.9 bn MT
 Animal Husbandry and Aqua as % of Agri GDP	37%	+16% →	53%

Source: Industry estimates, Economic Survey of India, World Bank, IMF

# POULTRY DRIVERS OF GROWTH

- Formulation optimization
- Alternate RMs

**Feed**

Driven by private players



**Management Practices**

**Breed**

Pre 2000s

2000-2010

Current

**2+**  
FCR

**1.8**  
FCR

**1.5**  
FCR

- GP import → improvement in HHHE
- Body weight reached in 35 days, vs. 8 weeks in 90s
- Improvement in Meat to bone ratio

**Lower mortality rates  
(last 10 years)**

**~8%** → **~6%**

Source: Industry estimates

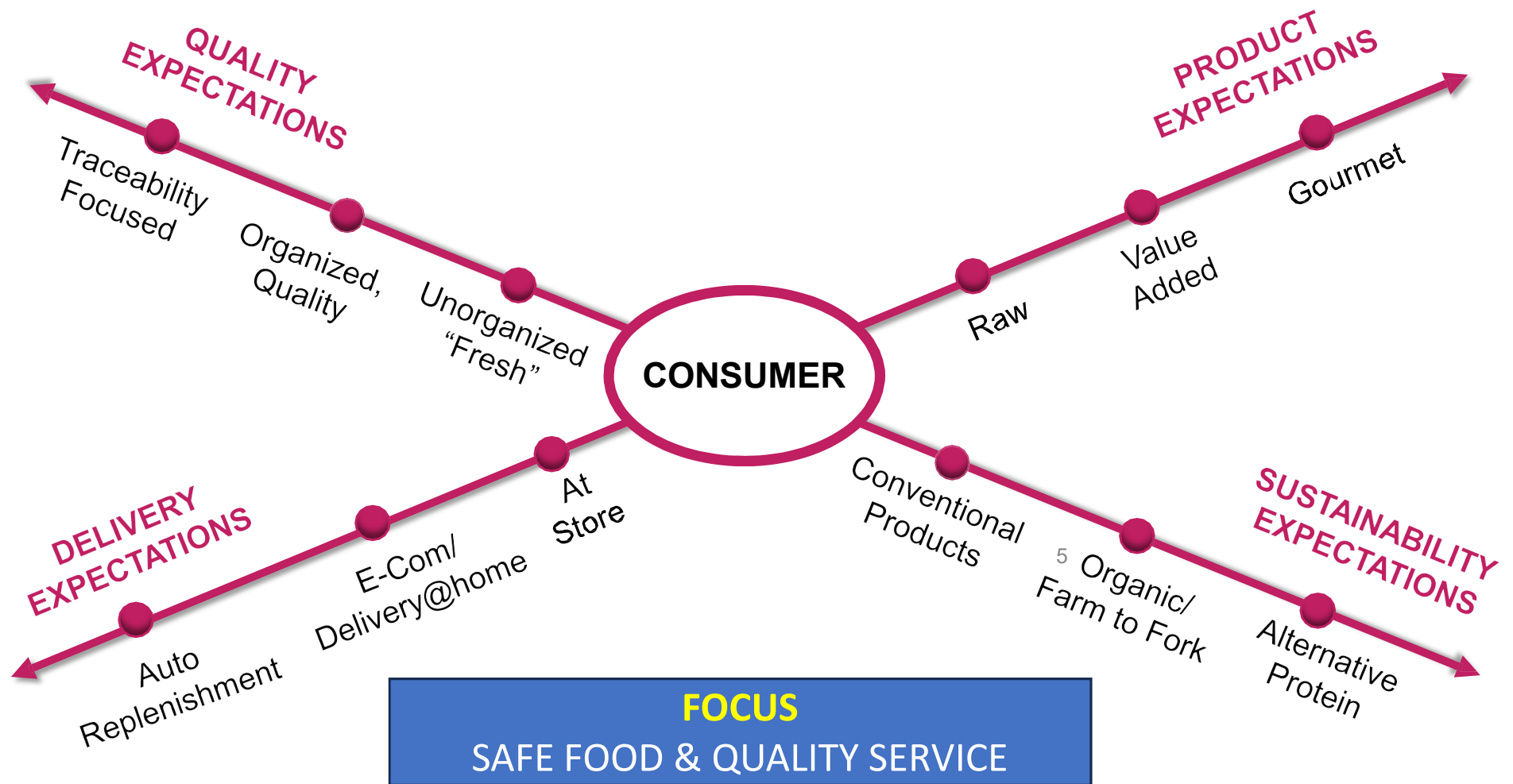
**Types of vaccine**

**5** → **~16**

**Biosecurity**

- EC houses
- Automated feeding systems
- Growing practice of AI

# CONSUMER BUYING BEHAVIOR PATTERN IN ANIMAL PROTEIN



# FACTS V/S MYTHS

Are Antibiotics bad?

Are Antibiotics needed for cure?

Antibiotics must be used responsibly!

Health of birds is important for more quality eggs/Meat

Egg is healthy source of protein

Is AMR an issue?



## Egg Nutrition

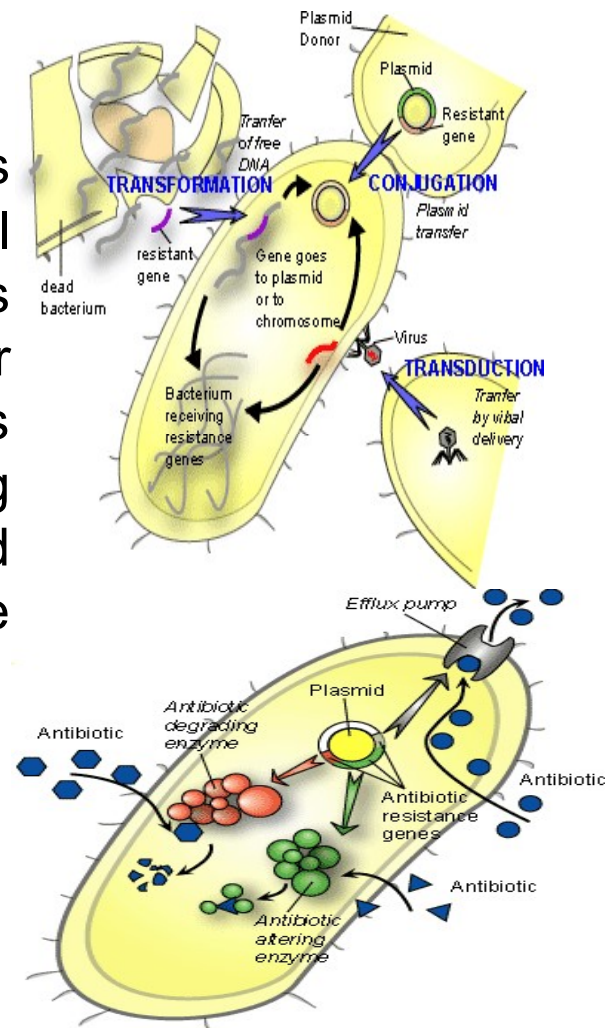


Yolk		White	
Fat	4.5 g	Fat	0 g
Sat. Fat	1.6 g	Sat. Fat	0 g
Cholesterol	184 mg	Cholesterol	0 mg
Carbohydrates	0.5 g	Carbohydrates	0 g
Protein	2.5 g	Protein	4 g

# ANTIMICROBIAL RESISTANCE –Advantage Microbes ?

"The use and misuse of antimicrobials in human medicine and animal husbandry over the past 70 years has led to a relentless rise in the number and types of microorganisms resistant to these medicines - leading to death, increased suffering and disability, and higher healthcare costs." —

**World Health Organization**

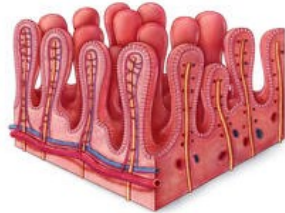




# HEALTHY GUT: Key for Poultry Production

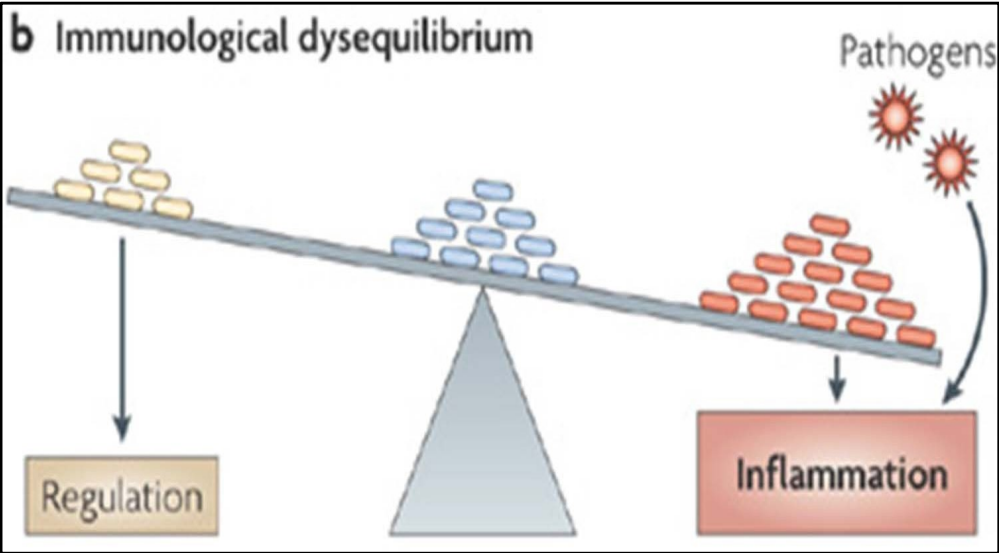
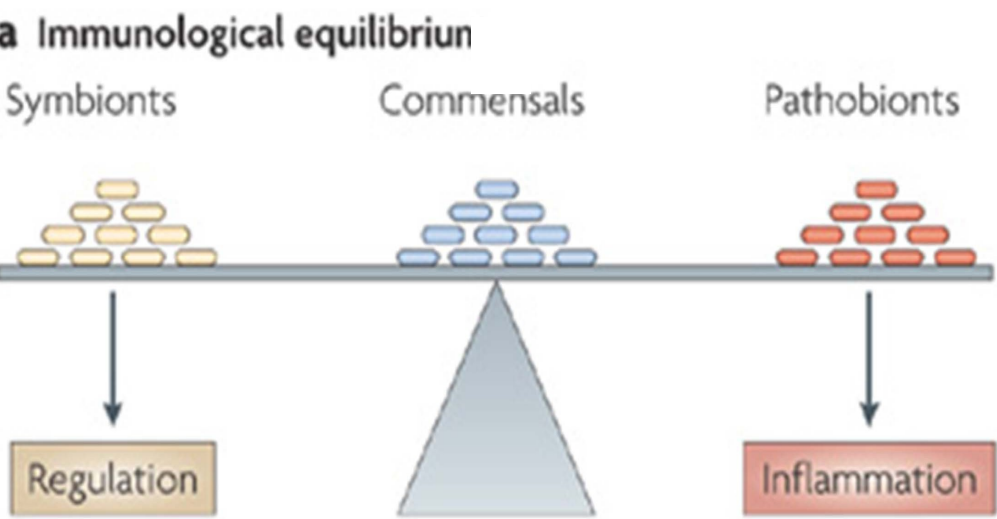
- The integrity of the gastrointestinal tract (GIT) and the gut microbial community play vital roles in **nutrition absorption, development of immunity and disease resistance.**

## Role Microbiota in Gut Immunity

- Symbiotic relationship: (Interaction between two different  in close physical association, typically to the advantage of both).
- Shaping and maintaining immunity: –**Innate immunity & Adaptive immunity**



# Gut Ecosystem in Equilibrium



# Necrotic Enteritis

- Characterized by sudden death, friable and distended intestines, and severe necrosis of the intestinal mucosal
- Mortality : 2-50%
- **Predisposing Factors:**
  - ✓ Toxins produced by *Clostridium perfringens* type A
  - ✓ Bacteria such as *Salmonella* & *E.coli*
  - ✓ Mycotoxin-contaminated poultry feed
  - ✓ Coccidiosis (*Eimeria* contamination or vaccination)
  - ✓ Immune suppression



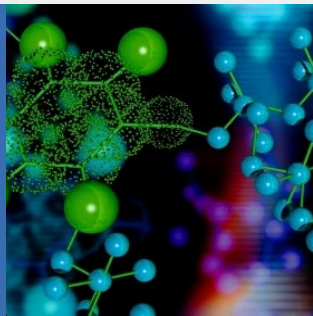
Necrotic enteritis: severe necrosis of intestinal mucosa

# SAFE FOOD: ALTERNATIVES TO ANTIBIOTICS



## Antimicrobial Residues

Judicious usage of Antimicrobials in animal food production systems



## Health Index

Maintaining higher health index of animals to optimize production

Return  
On  
Investment



## Food safety

How we can ensure animal food production safe with profitability



## Hazardous Synthetics in Feed

Keeping synthetic ingredients minimum in feed of biological converters



## Better ROI

How to Minimize production cost, reduce wastage and improve production indices



## ALTERNATIVE GROWTH PROMOTERS- **why**

Used with objective of improving health and productivity of poultry birds

To provide safe and healthy food to human beings

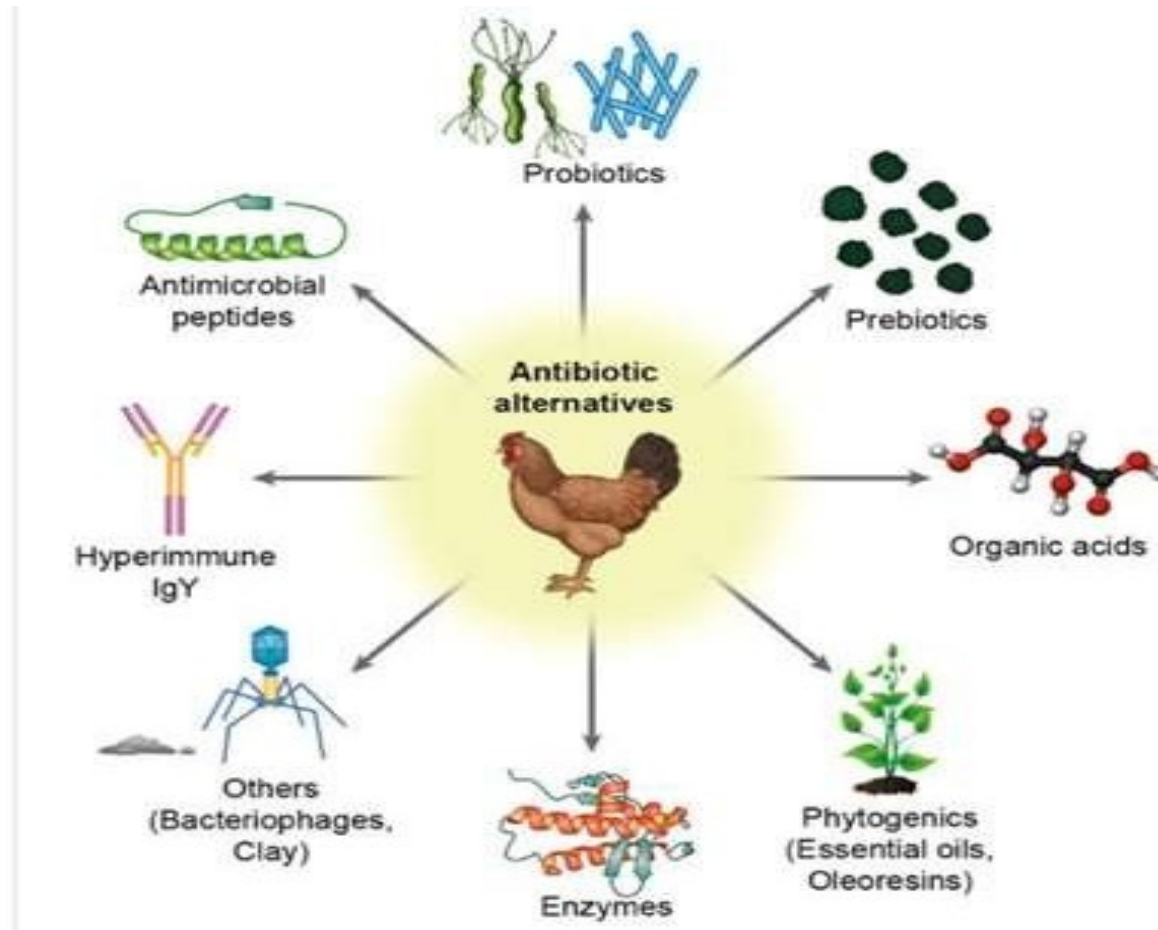
Food has to be nutritious but safe as well

Calls for judicious use of Antibiotics for therapeutic use

Concerns at various government levels to produce safe chicken and eggs



# Alternatives of Antibiotic Growth Promoters



# ALTERNATIVES to ANTIBIOTICS

## Options

- Essential oils
- Probiotics
- Herbal Extracts
- Prebiotics
- Organic acids

## Actions

Antimicrobial, antioxidant, Gut ↑  
Gut health & Immunity  
Antimicrobial, Intestinal health  
Gut health, more nutrient absorb  
Optimal pH levels, nutrient utilize



## **Antibiotic growth promoters**

- Narrower spectrum of action.
- Resistance.
- Imbalance gut flora.
- Side effects and incompatibilities.
- Withdrawal period. Residues.



## **Phyto-active ingredients**

- Wider spectrum of action.
- No resistance.
- Balance gut flora.
- Anticoccidial.
- Stimulate feed intake
- Safe and environmentally friendly.



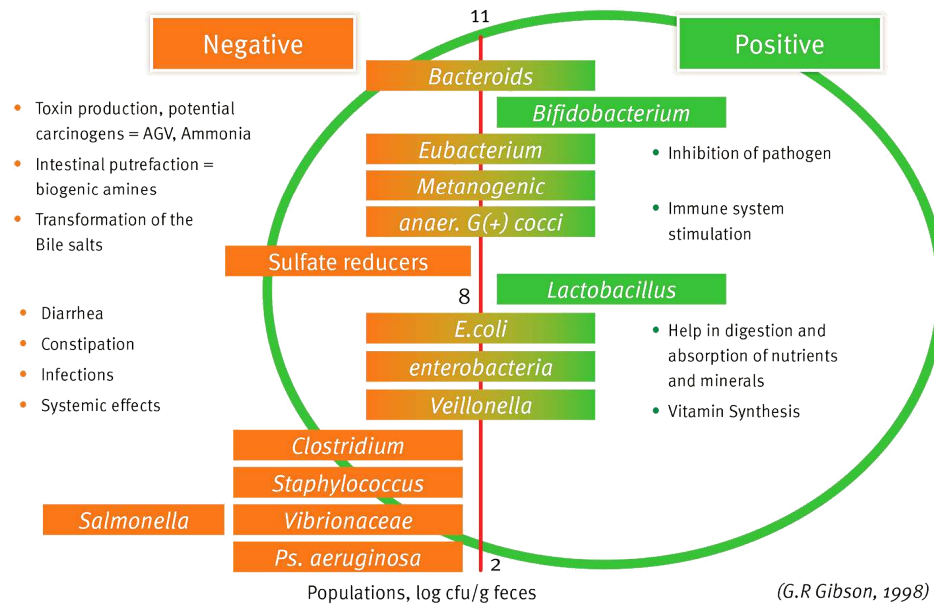


# The Poultry Gut...

>600 bacterial species: Richness & Evenness

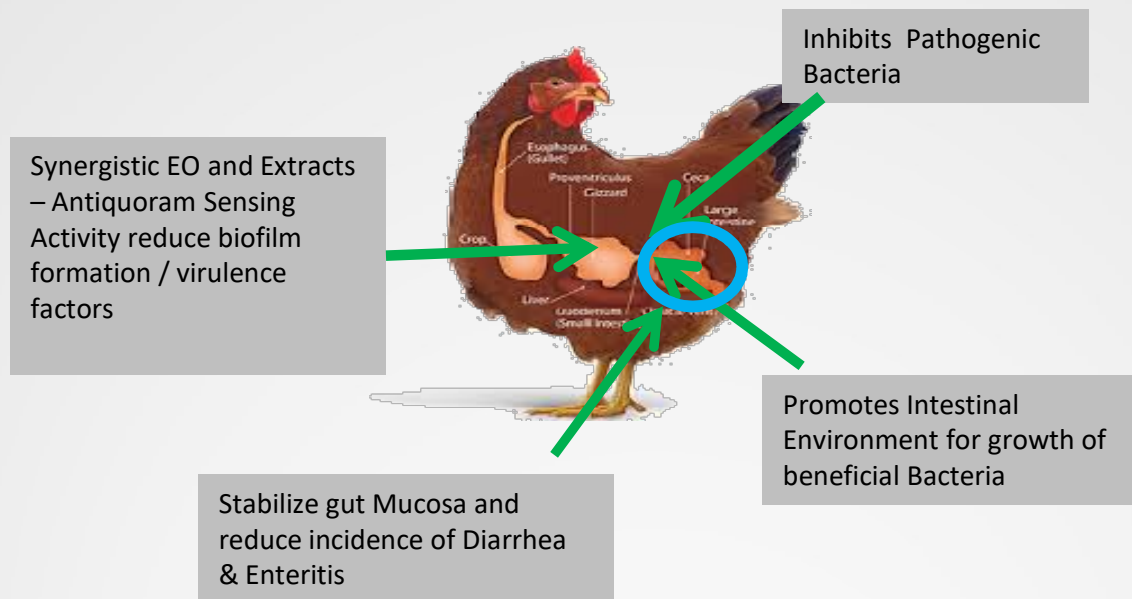
(~~antibiotics~~)

Phytogenics  
can distinguish  
good & bad  
bacteria



# Mechanism of Action

## ALTERNATIVE TO SYNTHETIC ANTIBIOTICS

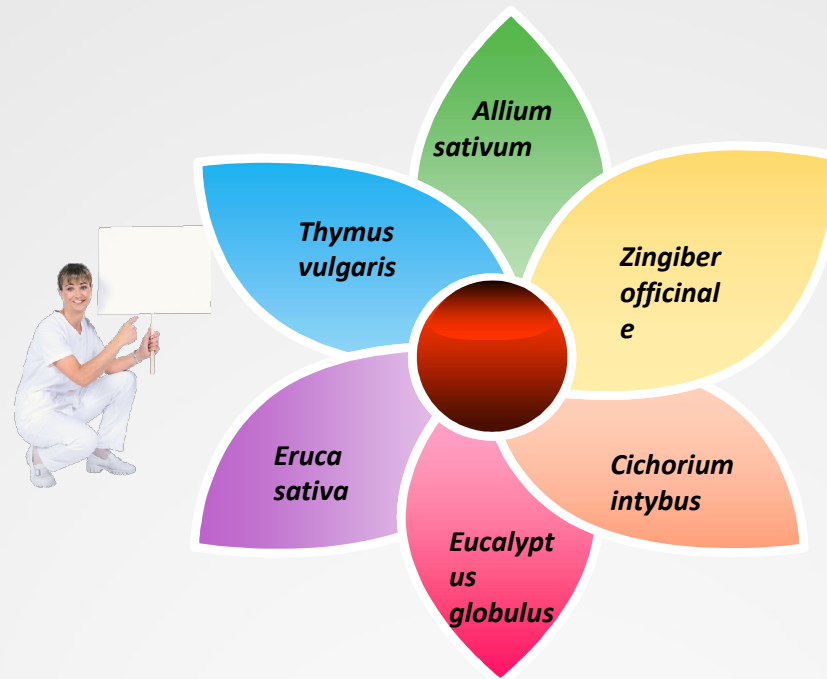


# HERBS to MITIGATE AMR

## ALTERNATIVE TO SYNTHETIC ANTIBIOTICS



[www.ayurved.com](http://www.ayurved.com)

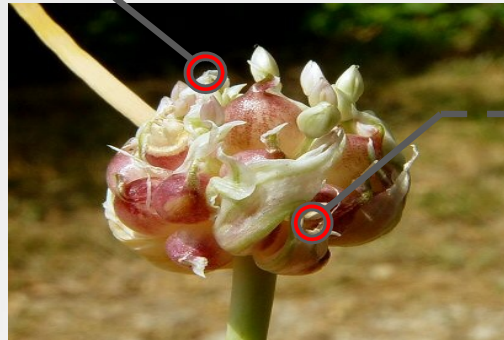


# Phytochemicals...

## ALTERNATIVE TO SYNTHETIC ANTIBIOTICS

**Allicin**

Antimicrobial



**Alliin**

Hypolipidemic

*Allium sativum*

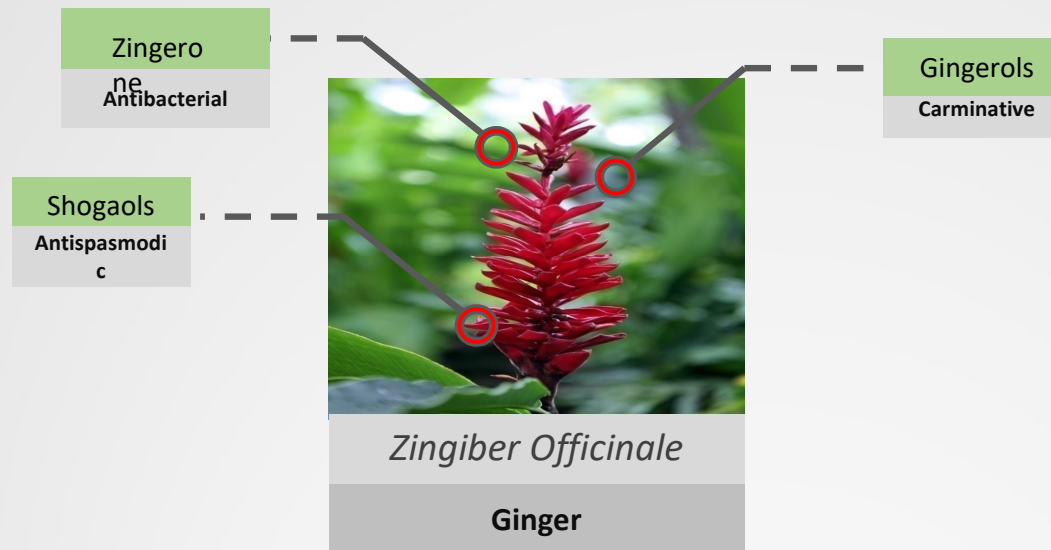
Garlic

Natural antibiotic ,antiviral, promotes gut function, helps to attain microbiocenosis, maintain gut ecology



# Phytochemicals...

## ALTERNATIVE TO SYNTHETIC ANTIBIOTICS



Antioxidant, Antimicrobial, Natural growth promoter



# Phytochemicals...



[www.ayurved.com](http://www.ayurved.com)

## ALTERNATIVE TO SYNTHETIC ANTIBIOTICS

Inulin  
Biofilm  
Inhibitor



*Cichorium intybus*

Common chicory

Jigrine  
Hepatoprotective

Digestive tonic, promotes histological development of gut (gut morphogenesis), promotes gut & intestinal microbiocenosis

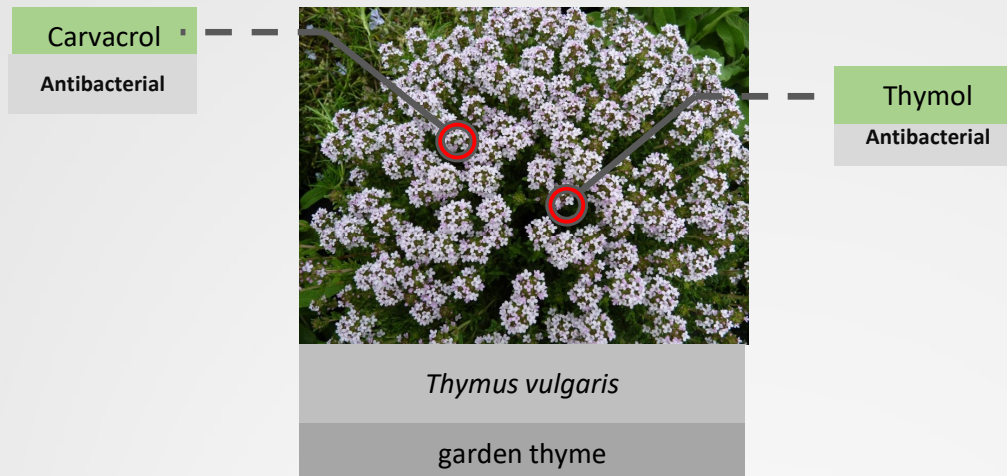


# Phytochemicals...



[www.ayurved.com](http://www.ayurved.com)

## ALTERNATIVE TO SYNTHETIC ANTIBIOTICS



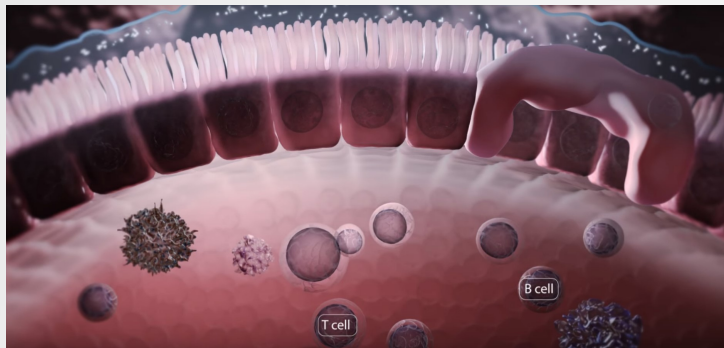
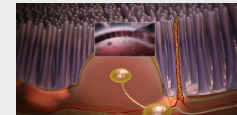
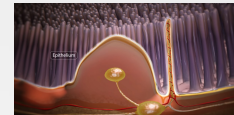
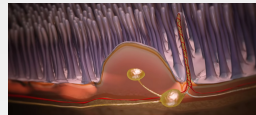
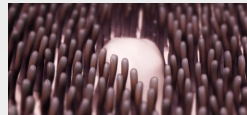
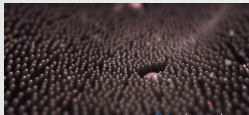
Antimicrobial, Immunomodulator, Antioxidant, Hypolipidemic, Alternate Growth Promoter





# Benefits of Herbs

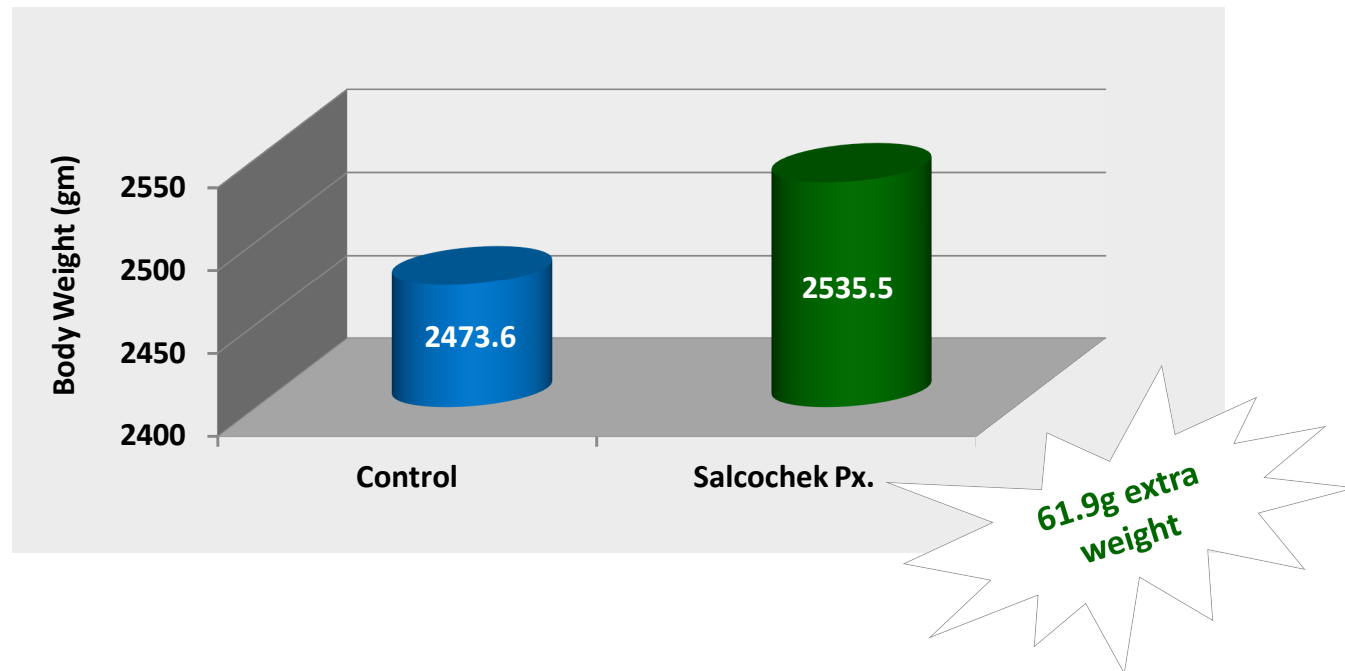
## Intestinal Morphology Ileum – Goblet Cells



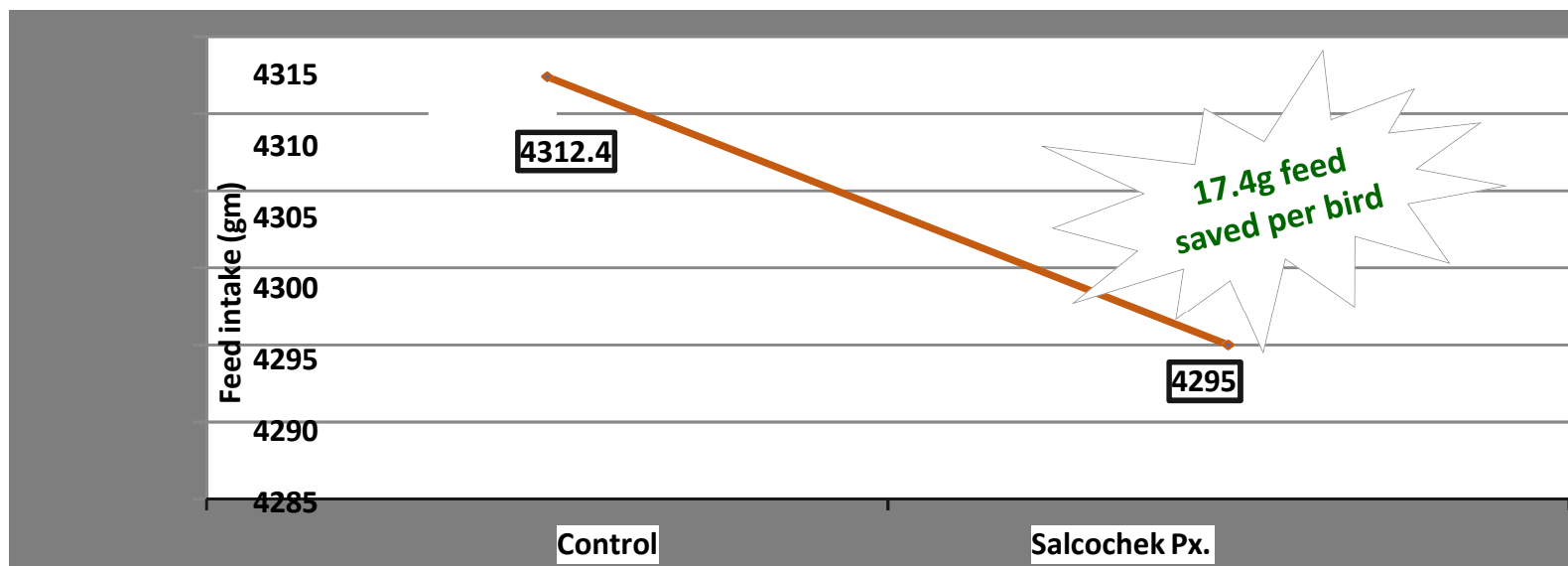
GCs have an established role in **eliciting innate immune response** by secreting mucins, a major component of the mucous layer, which provides a first line of defense against physical and chemical injury, and protects against the invasion by pathogens



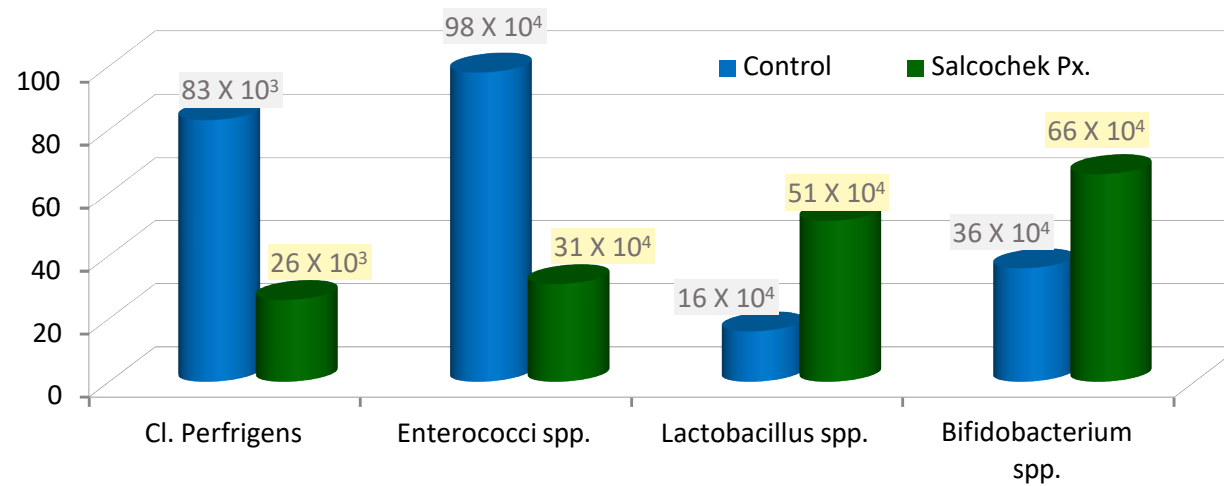
## Mean Final Body Weight (g)



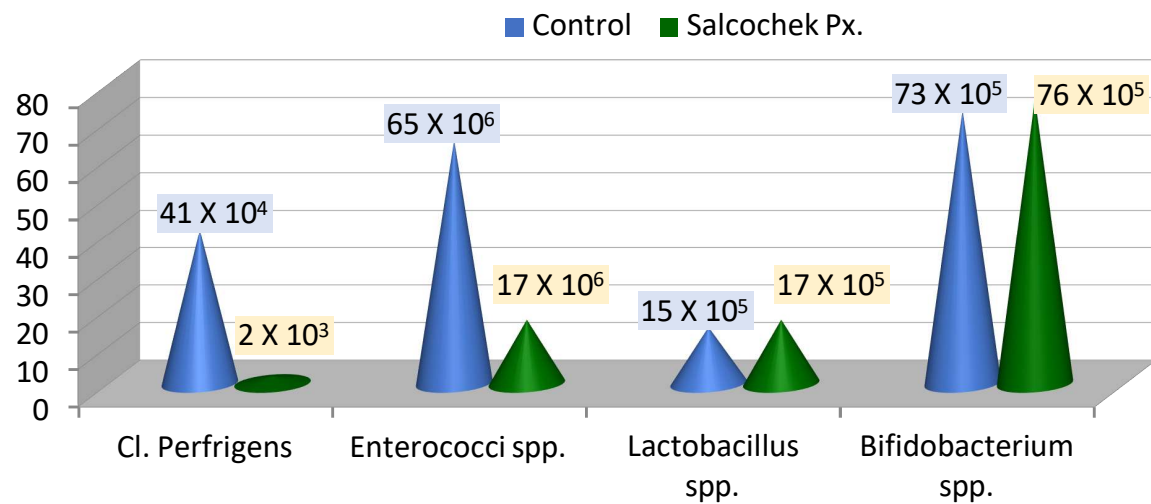
## Mean Total Feed Intake (gm)



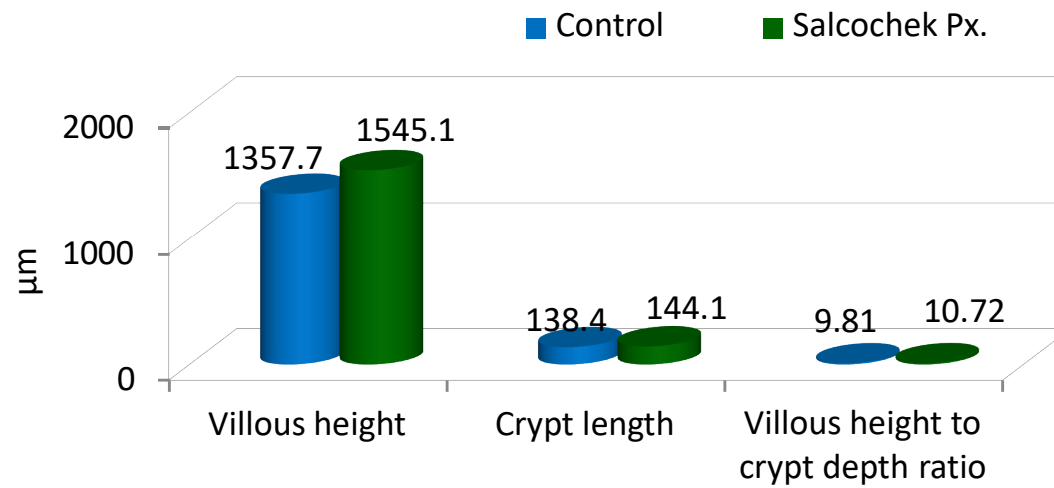
# Ileal bacterial population



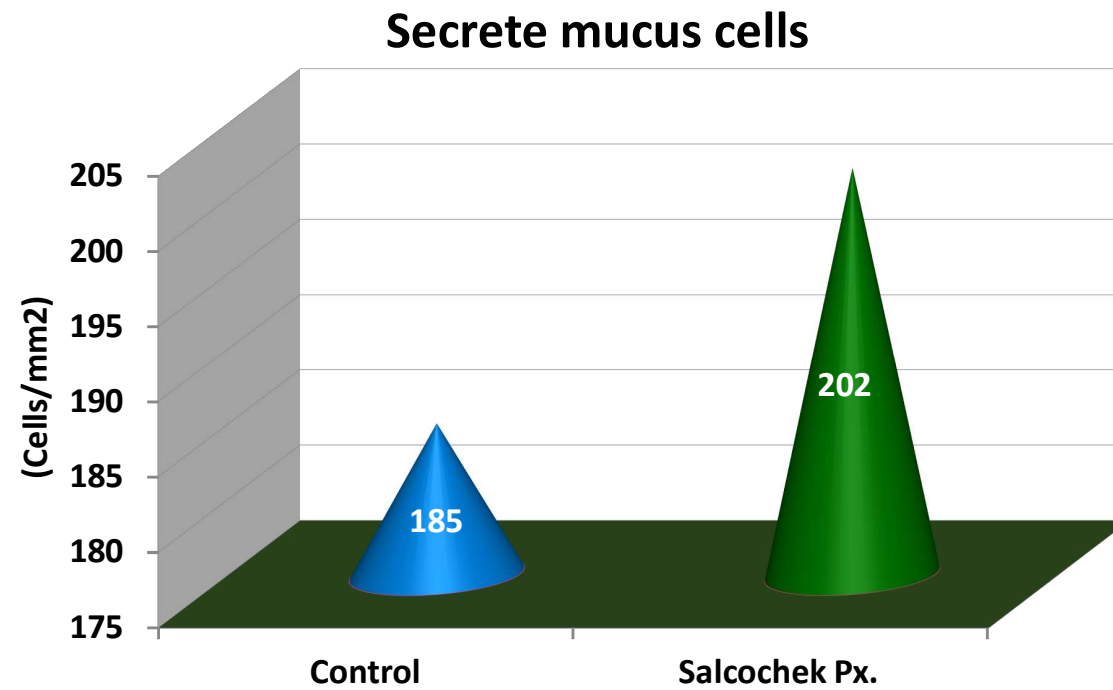
# Cecal bacterial population



# Intestinal Morphology



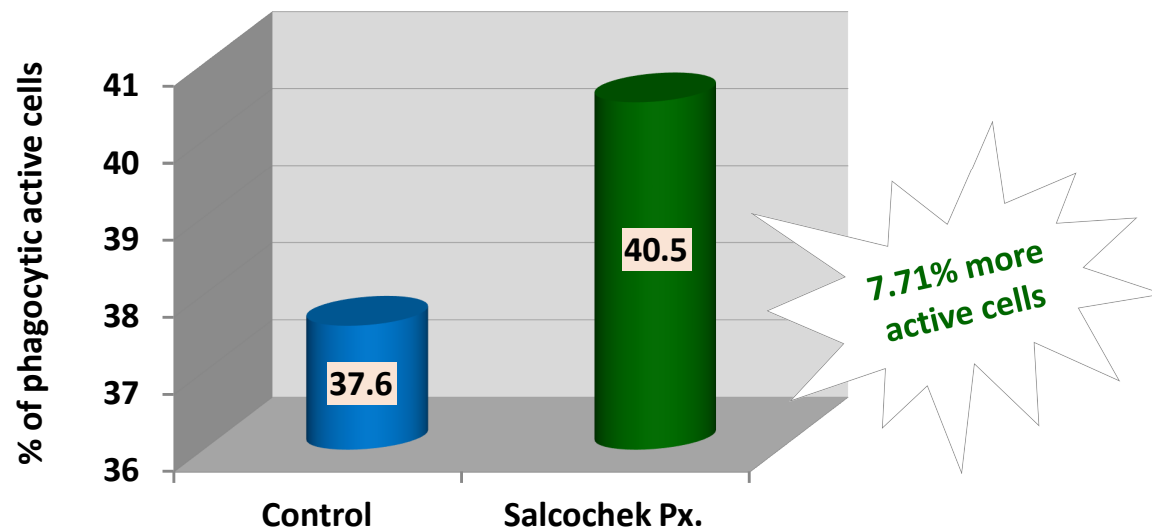
Goblet Cell No.cells/mm<sup>2</sup>



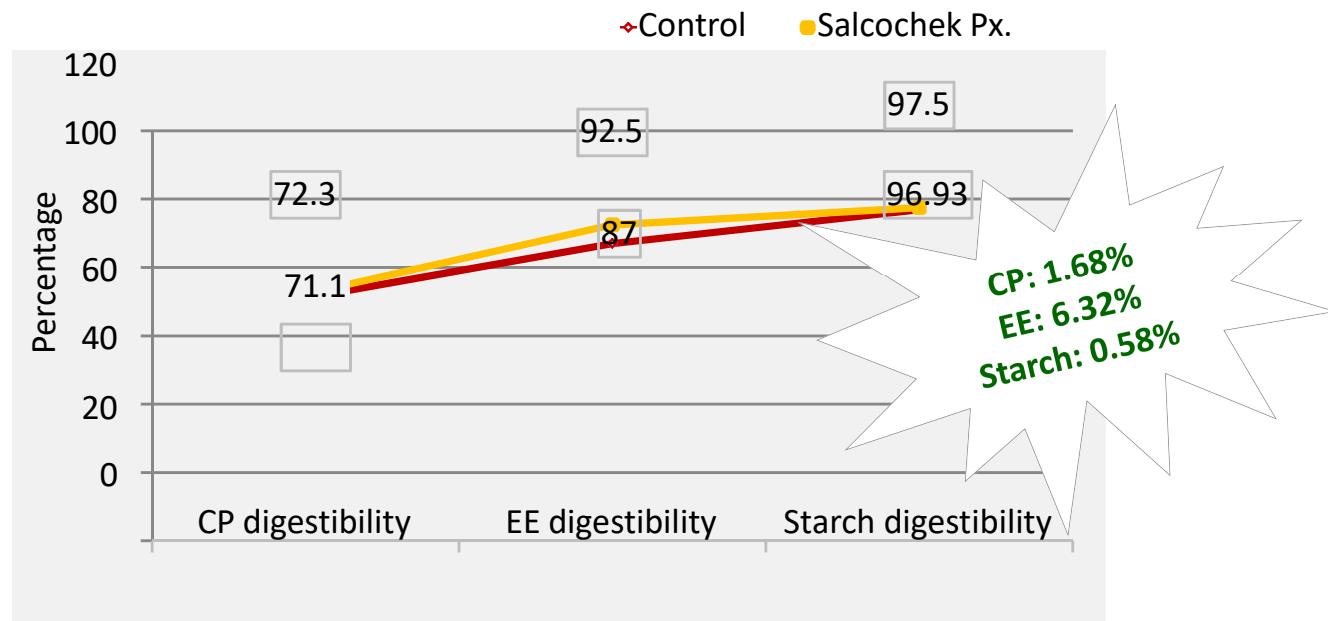


## Heterophil Function ( First line of Defense)

**(% of Phagocytic active cells)**



# Nutrient Digestibility



# REGULATORY

In India, the regulatory framework for the use of prebiotics, probiotics & others in poultry feed is still evolving. While there are no specific, comprehensive guidelines for these additives, the industry relies on a combination of general regulations, industry best practices, and international standards

- Three Important organizations
- AHD Examines & Recommends
- CDSCO Examines & Approves
- FSSAI Defines MRL limits & quality of food

Domestic Feed Supplements: Evolving  
Imported Feed Supplements: Standard Protocols/Health Certificate  
Antibiotics banned as Growth Promoter

**RESEARCH FOR IMPROVING SOIL, PLANTS, ANIMAL,  
HUMAN & ENVIRONMENT HEALTH**

**Benefit To Society**



Knowledge enhancement



Socio – economic upliftment



Clean Environment

# Thanks