

# POULTRYLINE

Readership — Poultry Wide

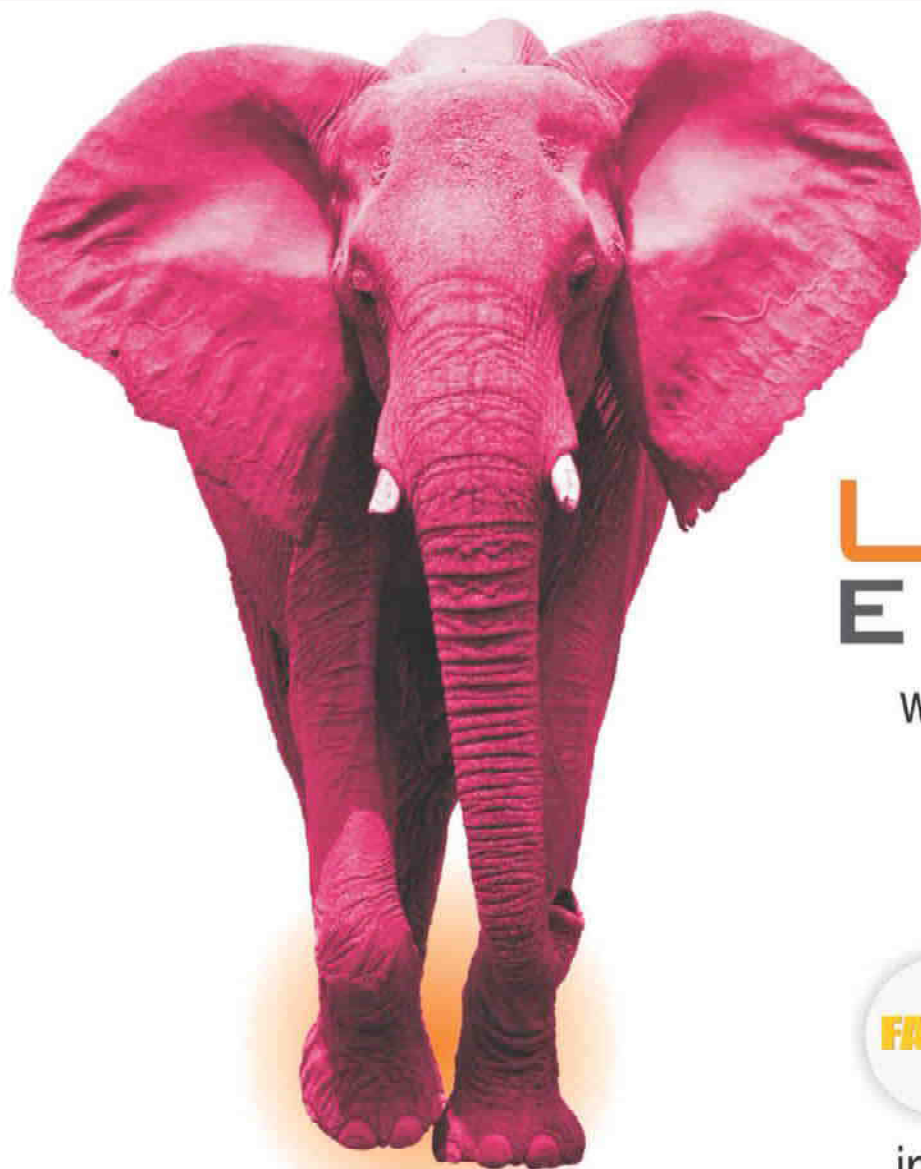
VOLUME - 21

ISSUE - 8

ANNUAL SUBSCRIPTION RS. 500/-

AUGUST 2021

Rs. 50/-



## LUMIS ENZYMES

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



[info@feedenzymes.com](mailto:info@feedenzymes.com)

**"Unique Single and Customized Multi-Enzyme Complex  
Specially Designed for the Indian Feed"**



for Pan India:  
**VETSFARMA LIMITED**  
Jalandhar

Exclusive distributor:

for West Bengal:  
**EASTERN MEDICARE**  
Kolkata





MINTREX®

## Trust Forms The Core Of Our 'BONDS'...

When it comes to setting higher benchmark of performance as compared to other chelated mineral sources; producers across the world spread over 100 countries, trust MINTREX®.

MINTREX® is the only globally available bis-chelate where one molecule of metal is attached to two molecules of HMTBa (2 hydroxy-4-methylthio-butanoic acid) by strong bonds. The unique, stable and neutrally charged structure of MINTREX® minerals lead to higher absorption, bioavailability and production performance as compared to other mineral sources. The uniqueness of MINTREX® minerals has been recognized by various international bodies like EU and AAFCO by classifying them as a distinguished class of minerals.

**Zn**

80% Methionine Value

**Cu**

78% Methionine Value

**Mn**

76% Methionine Value

## Building 'BONDS' Stronger

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



**TMO and TMO Plus**  
(For 'Trace Mineral Optimization' in Poultry)

**NOVUS®**

\*TMO and TMO Plus standard premix from Novus contains MINTREX® chelated minerals as a source of Zn, Cu and Mn.  
\*Novus and MINTREX® are trademarks of Novus International, Inc., and are registered in the United States and other countries.  
©2019 Novus International, Inc. All rights reserved.



## Ultimate Solution... *for* Liver Protection



# *Hepawell*<sup>TM</sup>-P

***Multiple action and Versatile benefits***

For further information please contact :  
**VENKY'S (INDIA) LIMITED**  
ANIMAL HEALTH PRODUCTS DIVISION

An ISO 9001 Certified Company

"Venkateshwara House", S. No. 114/A/2, Pune Sinhgad Road, Pune 411030.

Tel.: +91-20-24251803, Fax: +91-20-24251060 / 24251077. E-mail: [ahp@venkys.com](mailto:ahp@venkys.com) Website: [www.venkys.com](http://www.venkys.com)

# The RIGHT FEED



Dependable, Anywhere, Anytime

## Suguna Broiler Feed



- ✓ Better FCR
- ✓ Better Livability
- ✓ Faster Growth

PBS | BS | BF | BC-10% | BC-40%



## Suguna Layer Feed

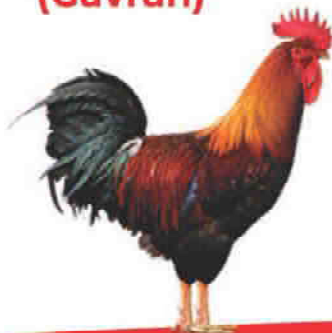
LSC | LCC | LGC | LLC | LC 35% | LC 40%



- ✓ Better Livability
- ✓ Lowest Feed Cost
- ✓ More Eggs



## Suguna Country Chicken Feed (Gavran)



- ✓ Balanced Diet
- ✓ Rich in Nutrients
- ✓ Better Weight Gain

CCS | CCF



For Trade Enquiries: 96504 37700 | [www.sugunafoods.com](http://www.sugunafoods.com)

**SUGUNA  
FOODS**  
Breeding Birds. Creating Together.



In every season **SPECIAL CARE** with....



With Power of Forgotten Acid and Specific Release Technology

**Indication :**

- To control necrotic enteritis and other economically important bacterial infections
- To improves intestinal defense and maintaining gut integrity
- To maintains feed hygiene and to reduce pathogen intake through feed
- To acidify gut for better nutrient digestion
- To promote growth of probiotics especially lactobacilli
- To reduces enterocytes villi inflammations

**Usage :**

- Broiler Prestarter and Layer Chick :  
1 kg/ ton of feed
- Broiler starter, Finisher and Layer :  
500 gm/ ton of feed
- Breeder : 500 gm to 1 kg/ ton of feed
- Challenging situations :  
1 kg/ ton of feed for 10 day
- Only Acidifier : 2 kg/ ton of feed



**Packing : 25 kg**

**nutridian**<sup>®</sup>  
ANIMAL HEALTH  
Leading Innovation Through Technology  
ISO 9001:2015 certified company  
and cGMP certified company

**NUTRIDIAN ANIMAL HEALTH**

A unit of Kanad Chemicals Pvt. Ltd.

12A Regency A, Eden Woods, Pokhran Road No 2, Thane (W) - 400 610.

Please contact us at : Customer Care No.: 0251-2611525

Email : info@nutridian.in • Website : www.nutridian.in



**FAM**qs

**ABIS**

# PARIVARTAN

IB Group's Socio-Economic Initiative

## ENVIRONMENT CONTROLLED BROILER HOUSE

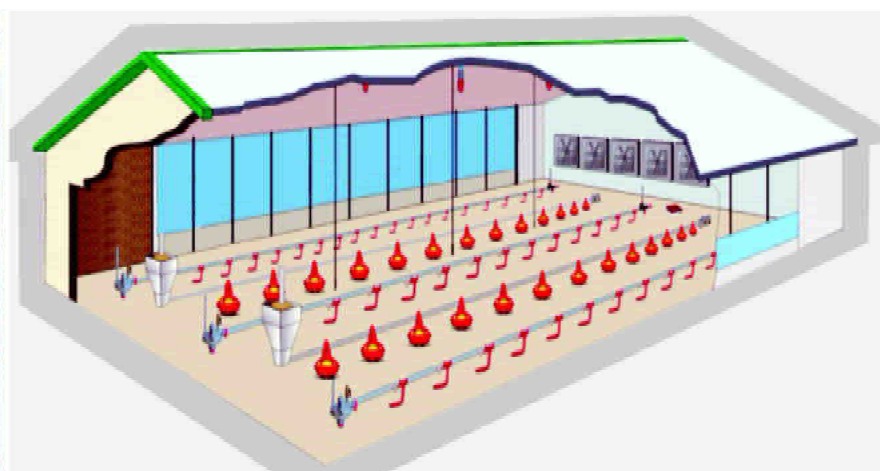
TRANSFORMED  
**46,93,872 SQ. FT.**  
FLOOR SPACE

**DOUBLING**  
FARMERS INCOME

→ **500+**  
Farmers Benefited  
→ **68,78,390+**  
Birds Reared

**CREATING**  
**ENTREPRENEURSHIP**  
**FOR YOUNG INDIA**

“Come and Join the Journey Be a Part of the Change and Success”



### Additional Benefits to Farmers



Installation of EC  
House Equipment



Resource / Technical  
Support



Live Broiler  
Sales Support

**Indian Agro & Food Industries Ltd.** : IB Group Corporate House Indamara, Rajnandgaon (CG) - 491 441.

☎ +91 7898801916, +91 9229180810, +91 9109139712, Visit us at : [www.ibgroup.co.in](http://www.ibgroup.co.in), Email : [parivartan@ibgroup.co.in](mailto:parivartan@ibgroup.co.in)

## BAFACOL™

### A Natural Guard against avian pathogenic *E. coli*

to protect your Poultry & Profits



Reduces  
Mortality



Improves  
Egg Production



Improves  
Hatching Rate

Painstaking  
for your  
*E. coli*  
challenge



Proteon Pharmaceuticals India Pvt. Ltd previously known in India as Vetphage Pharmaceuticals Pvt. Ltd.



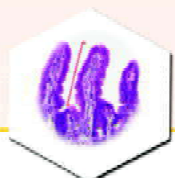
[www.proteonpharma.in](http://www.proteonpharma.in)  
[contact.india@proteonpharma.com](mailto:contact.india@proteonpharma.com)







# APC Nutrients



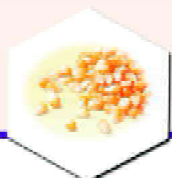
## Butrient

Butyric acid ester for improving gut integrity



## Balancid

Effective way to balance dietary electrolytes and feed acidification



## MoldStat

Mold inhibitor for guaranteed protection against fungi growth in raw materials as well as complete feeds.



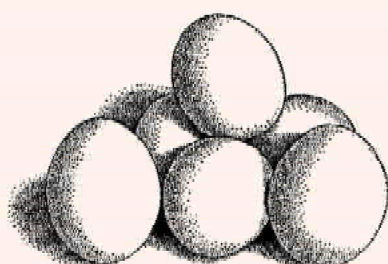
## Tox-Cure Plus

Mycotoxin deactivator for polar & non-polar mycotoxins



## Bact-Care Dry

Non-formaldehyde based ultimate solution against Salmonella and other enterobacteria for routine feed mill hygiene



## APC Nutrients Pvt Ltd

506, 5<sup>th</sup> Floor, Amsri Eden Square, St. John's Road  
Secunderabad - 500003, Telangana, India

Tel: 91-40 - 2789 9273 / 2784 9798 / 2781 5777

admin@apcnutrients.com | www.apcnutrients.com

# POULVAC<sup>®</sup> Bursaplex<sup>®</sup>

*One Vaccine Shines Out Among The Rest*



India's First ICX Vaccine

Single shot IBD Vaccine

Works in Synchronization with Mab

Uniform vaccination at Hatchery

Complete lifelong protection in Broilers



## Zoetis India Limited

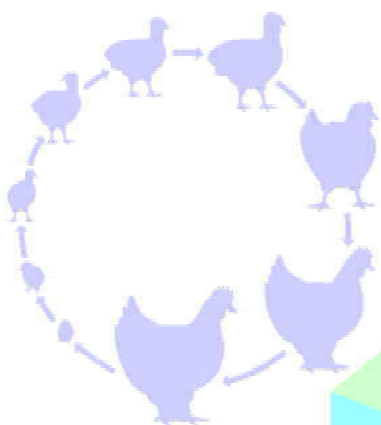
31, 3rd Floor, Kalpataru Synergy, Opp. Grand Hyatt,  
Santacruz (East), Mumbai- 400 055  
Web: [www.zoetis.in](http://www.zoetis.in) • Email: [indiaanimalhealth@zoetis.com](mailto:indiaanimalhealth@zoetis.com)

**zoetis**



# FAUNA REMEDIES INC.

Quality is our tool for success



## FAUNA REMEDIES INC.

"Sri Venkateshwara Nilayam" 2-5-114/41/9,  
Plot No 9A, First Floor, Sai Hills, Rajya Lakshmi Colony,  
Road No 3, Extension Nagole, Hyderabad - 500068,  
Telangana. Mob : 7731978706  
Email : [faunaremedies@gmail.com](mailto:faunaremedies@gmail.com)  
Website : [www.faunaremedies.com](http://www.faunaremedies.com)

7731978706  
FAUNA CARE





# EVALON<sup>®</sup>

With **HIPRAMUNE<sup>®</sup> T**

Live attenuated vaccine  
against avian coccidiosis

**A LIFETIME  
OF IMMUNITY**

Powered by  
**SMART  
VACCINATION**



The **Reference**  
in **Prevention**  
for **Animal Health**

**HIPRA INDIA**  
#209, 2nd Floor Platinum Square (next to Hyatt Regency Hotel), Vascon Engineers Ltd., S.  
No. 30/3A, Viman Nagar Pune 411014, Maharashtra India  
Tel.: (+91) 20 6768 2300 • Fax: (+91) 20 6768 2302 • [india@hipra.com](mailto:india@hipra.com) • [www.hipra.com](http://www.hipra.com)

Now Available  
in India



GET THE FULL  
**POTENTIAL**



THE NUMBERS **TELL IT ALL**  
**100BILLION**  
**BIRDS VACCINATED**  
*From the first launch in 2006*

**PREVENTION WORKS**  
Shaping the future of poultry health



# POULTRY LINE

## పాల్ట్రీ లైన్

Editor : **B. SHIV SHANKAR**  
 Associate Editor : **B. KALYAN KUMAR**  
 Sub Editor : **R. SHAIKESH NAATH**  
 Sr. Technical Editor : **Dr. M.A. MUJEEB ATHER**  
 Technical Editor : **Dr. MANOJ SHUKLA**

### TECHNICAL EDITORIAL BOARD

**Dr. P.K. SHUKLA**, Jt. Commissioner Poultry, G.O.I., New Delhi.  
**Dr. J.L. VEGAD**, Phoenix Group, Jabalpur.  
**Dr. V. RAMASUBBA REDDY**, Retd. Professor, Agri. Uni. Hyd.  
**Prof. G. DEVEGOWDA**, M.V.Sc., Ph.D., (USA), B'lore.  
**Dr. D. CHANDRASEKARAN**, Prof & Head, Vet.Col. & Res.Ins. Nammakal.  
**Dr. A.U. QIDWAI**, Dy. Director, Directorate of A.H., Badshahbag, Lucknow  
**Prof. DEVAREDDY NARAHARI**, M.V.Sc., Ph.D.Chennai.  
**Dr. V. KRISHNA RAO**, Poultry Consultant, Hyderabad.  
**Dr. S.V. RAMA RAO**, Scientist RJNR, Hyderabad.  
**Dr. A.K. PANDA**, Scientist, PDP, RJNR, Hyderabad.  
**Dr. B.S. VENKATARAMI REDDY**, Prof. & Head, Hebbal, B'lore.  
**Dr. SUJIT KULKARNI**, Sales Director, Biomin Singapore Pte Ltd.  
**Dr. JYOTI PALOD**, Professor, C.V.A.Sc., Pantnagar.  
**Dr. RAMDAS S. KAMBALE**, SBU Head & Chief - AHD - Chembond Chemicals  
**Dr. S. NANDI**, B.V.Sc. & A.H., M.V.Sc., Ph.D., IVRI, Izatnagar, U.P.  
**Dr. D. SANCOTA**, M.V.Sc. (APAU) Ph.D. (IVRI) Guwahati.  
**Dr. B.K. SWAIN**, M.V.Sc., Ph.D., Ela, Goa.  
**Dr. NIRANJAN KALITA**, M.V.Sc., Ph.D, Professor, Guwahati.  
**DR. S. K. KHURANA**, Associate Prof., COVAS, Palampur (HP)  
**Dr S K MUKHOPADHAYAY**, Asso. Prof.(Vety Pathology) WBUAFS, Kolkata.  
**Dr SUBHA GANGULY**, Scientist, AICRP-PHT, Kolkata Centre.  
**Dr LOKESH GUPTA**, Tech Mgr-Poultry, Alltech India.  
**DR VIJAY SWAMI**, M.V.Sc., A.H., Country Manager, SunHY Biology Co. Ltd.  
**DRATULBHAGWANSINGH RAJPUT**, DGM, Sales, Optima Lifescience

**B. Shiv Shankar** - Managing Partner  
**B. Kishore Kumar** - Media Executive  
**B. Shailajaa** - Circulation Manager  
**J. Upender Rao** - Marketing Manager South Telangana  
**Sathyendranath** - Marketing Manager North Telangana  
**Hari Prasad** - Head, Designing Department  
**P.N. Nithin** - Incharge - Photography  
**K. Raghuramaraju** - Publication Consultant (09440231211)

### CONTENTS

1. Management of layer ....feed acidifier  
- Dr. Raju Jakkula ..... 13 - 16
2. The effects of phytogenic .... performance  
- Gina Medina ..... 17 - 18
3. Duck Farming: ..... the Income of Farmers  
- Suraj Amrutkar ..... 27 - 31
4. Broiler Rates..... 34
5. NECC Egg Rates ..... 68
6. Commercial Poultry ... During Rainy Season  
- Dr. Akshay Mote ..... 66-67
7. Press Releases .....  
32-33, 41-48, 55-65

**Poultry Line may not necessarily  
 subscribe to the views expressed in  
 the Articles published herein.**

### TEJASVI PUBLICATIONS

2-1-444/16, 1st Floor, O.U.Road, Nallakunta, Hyd. - 500 044.  
**Ph: 040-2761 0027, Cell : 98493 68003, 63096 77047**  
[www.tejasvipublications.com](http://www.tejasvipublications.com)  
 E-mail : [tejasvipoultryline@gmail.com](mailto:tejasvipoultryline@gmail.com)  
[tejasvi\\_poultryline@rediffmail.com](mailto:tejasvi_poultryline@rediffmail.com)



## INDEX OF ADVERTISEMENTS

Particulars	Page No.	Particulars	Page No.
Altech	Inside Colour 25	Nutridian Animal Health	Inside Colour 3
Animal Wellness Products	Inside Colour 49	NuTech Bio Sciences Pvt. Ltd.	Inside Colour 50
Avitech	Inside Colour 53	Omega Group	Inside Colour 24
APC Nutrients Pvt. Ltd.	Inside Colour 6	Optima Life Sciences Pvt. Ltd.	Inside Colour 37
Biomin Singapore Pvt. Ltd.	Inside Colour 40	Poultry Consultancy Services	64
Boehringer Ingelheim India Pvt. Ltd.,	Inside Colour 10	Provet Pharma Pvt Ltd.	Inside Colour 35
Ceva Polchem Private Limited	Inside Colour 52	Proteon Pharmaceuticals	Inside Colour 5
DSM Nutritional Products India Pvt Ltd.	Inside Colour 39	Rovitex Agro Chem	Inside Colour 36
Eco-Mix Feed Formulations & Software	12	Sai Krishna Plastic Industries	Inside Colour 38
Exotic Bio Solutions Pvt. Ltd.	Inside Colour 51	Sree Lakshmi Hatcheries Pvt. Ltd.	59
Fauna Remedies Inc.	Inside Colour 8	Sri Lakshmi Packaging Company	48
Hipra India Pvt. Ltd.	Inside Colour 9	Srinivasa Farms Private Limited	Inside Colour 49
Huvepharma	Inside Colour 22	SS Associates	44
Indian Agro & Food Industries Ltd.	Inside Colour 4	Suguna Foods	Title Fold 4
Lumis Biotech Pvt. Ltd.	Title Cover I	Uttara Impex Pvt. Ltd.	Inside Colour 21
MSD Animal Health	Title Cover III	VHPL	Title Fold 3, Inside Colour 19 & Title Cover IV
Natural Remedies Pvt. Ltd.	Inside Colour 20 & 23	Zeus Biotech Limited.	Inside Colour 26
Novus Animal Nutrition (India) Pvt Ltd	Title Cover II	Zoetis India Limited	Inside Colour 7



CUT SHORT YOUR FEED COST

# *Eco-Mix*

LEAST COST FEED FORMULATION SOFTWARE FOR  
POULTRY, DAIRY AND ANY KIND OF LIVESTOCK

**Y.SRINIVAS**  
Cell : +91-9849039200



LOGIC SOFT SOLUTIONS

Flat No. 101, H.No.1-1-565, Raghavendra Apts., New Bakaram,  
Musheerabad, Hyderabad - 500.020. (A.P.) INDIA  
E-mail: [contact@logicsoftsolutions.com](mailto:contact@logicsoftsolutions.com) [www.logicsoftsolutions.com](http://www.logicsoftsolutions.com)

# Management of layer birds in rainy season - Role of feed acidifier

By **Dr. Raju Jakkula**, MVSc, PhD (Animal Nutrition),  
Nutrition & Health Solutions Manager, DSM ANH, India. Mail:raju.jakkula@dsm.com

The India Meteorological Department has forecasted normal rainfall during the monsoon months of June-September 2021 in India. During the rainy season there will be an increase in relative humidity and a reduction in temperature; rainfall affects both the quantity and quality of feeding, while wind speed and direction have an influence on the outbreak of diseases. Sometimes heavy rainfalls or cyclones may happen in this season and cause problems to the poultry farmers. Poultry farmers should be prepared well in advance to face the challenges that may arise in this rainy season.

## Problems in rainy season:

- In rainy season, sometimes severe wind waves or cyclones may cause the interruptions in power supply in the poultry sheds and in feed plants.
- Cool weather in the poultry sheds due to continuous rainfall and cold waves along with interruptions in power supply may create serious brooding related problems for layer chicks.
- Stagnation of water in the surroundings of poultry farms may help in the growth of mosquitos and other insects. These insects will increase the chance of transmitting the diseases like fowl pox etc.
- Due to heavy rains or floods, falling of trees across the roads and disruption in the road transport system may happen leading to difficulties in the transport of feed, live birds, and eggs etc.
- Sometimes drinking water may get contaminated with rainwater resulting in the increase in bacterial infections like E. Coli and Salmonella etc.
- The high humidity in the atmosphere during the rainy season makes the poultry feed and feed raw materials wet.
- If the farmers are growing pullets in deep litter system, they need to take precautions to prevent wet litter condition. If the litter is wet, endo parasites like tapeworms and round worms will grow in the litter and enters the chickens. These endo parasites may slow down growth in chickens and cause several gut health issues. It is advisable to deworm the flock during the rainy season.
- High moisture content in the litter may increase the release of ammonia gas and predisposes the birds to respiratory diseases such as coryza and CRD.
- High humidity in the atmosphere, stagnated water in the farm and wet litter will increase the fly problems. Flies will spread coccidiosis, necrotic enteritis, and other bacterial and viral diseases.
- Wetting of finished feed or feed raw materials due to rain splash or accidental spillage of water may lead to the growth of molds and yeast in feed. These molds will produce harmful mycotoxins like aflatoxins etc.
- If the finished feed is stored for more than 30 days during this season, there will be increased chances of mycotoxin contamination and rancidity in the feed.
- During the monsoon season, there will be thick clouds in the sky and the daylight hours are less than 12 hours. If the artificial lighting in the farms is not adjusted accordingly, there will be reduced production of reproductive hormones like FSH and LH required for egg production in chickens.

- In this season there will be increased prevalence of coccidiosis, fowl pox, coryza, CRD, E. coli, salmonella, aspergillosis and mycotoxicosis.

#### **Precautions to be taken during the rainy season:**

- Any repairs on the roof, walls, and flooring of the poultry sheds / feed plants and godowns should be completed before the arrival of rainy season.
- In heavy rainfall regions, the floor should be raised with a generous roof overhang (4-5 feet from the wall), particularly over the entrance. This prevents rainwater from falling directly into the shed.
- The open sides of poultry sheds should be covered with polythene sheets. This prevents rainwater from falling directly into the shed and protects the chickens from severe cold waves.
- Prevent the water logging around the sheds to minimize the mosquitos and other insect problems
- To control the house flies regular spraying of insecticides is recommended. Use insecticides that will act both on the adult flies as well as larval stages. Electric fly repellent or pest control devices should be installed in the shed.
- Polythene curtains around the shed should be closed only when there is a rain or severe cold winds, otherwise ventilation related problems may happen. Lack of proper ventilation in poultry sheds can lead to an increase in the percentage of ammonia gas, stunted growth in chickens, ascites, and respiratory diseases.

#### **Water management:**

- Due to heavy rains, wastewaters from agriculture and urban areas, which might contain high levels of pathogenic micro organisms and other contaminants, are carried to the superficial and underground waters along with the rainwater.

- Chlorinate the water, using the most adequate method for your farm.
- Assess levels of residual chlorine daily. The presence of residual chlorine in the water pipes at an adequate concentration (2-5 ppm) assures the absence of microorganisms pathogenic to the birds.
- Regular use of good quality sanitizer in water can inactivate the harmful bacteria in the water.
- Water consumption is generally low during monsoon. Chickens should always be provided with clean water and water storage tanks should be cleaned frequently.

#### **Lighting management:**

- Daylight hours are short during the rainy season, providing adequate artificial light will help to maintain the optimum feed intake and egg production
- The laying hen needs 16 hours of lighting per day. In addition to the 12 hours of natural day light, artificial lighting should be provided in the morning or evening or at both times.
- In addition to the light duration, light intensity also affects the productivity of laying hens. The light intensity should be 20-40 watts.

#### **Health management:**

##### **Coccidiosis:**

- The causative agent for this disease is a protozoan parasite of the genus Eimeria.
- Typical symptoms of this disease include bloody diarrhea, stunted growth, dehydration, anemia, listlessness, ruffled feathers, death, and drop in egg production.
- Coccidiosis can be prevented by adding coccidiostats in the feed, as the chances of coccidiosis are high during the monsoon season.

##### **Necrotic Enteritis**

- The disease is caused by the bacterial toxins of *Clostridium perfringens*



- Chickens infected with coccidiosis are more likely to develop the disease.

#### **E. coli:**

- E. coli is transmitted to chickens due to use of contaminated water during monsoon.
- This problem can be avoided by cleaning the water tanks frequently, adding acidifier to the feed and sanitizers to the water.

#### **Coryza / CRD:**

- Bacterial diseases such as Coryza / CRD are also more common during the rainy season. In addition, the use of contaminated water can exacerbate the problem.

#### **Mycotoxicosis**

- Accidental wetting of feed raw materials or finished feeds in the godowns, during transport or due to rain splashes in the feeders and storage of feeds for longer duration may result in mold growth and mycotoxin production.
- The problem of toxins is very high during the rainy season due to high moisture content in the atmosphere.
- Consumption of mycotoxin contaminated feed by the poultry will cause liver damage, lameness, decreased egg production & egg weight, reduced feed efficiency, reduced antibody titers to vaccines. If the problem persists for long time, there will be mortality also.
- To prevent this problem, care should be taken to use quality raw materials in feed preparation and storage.
- Adding high quality mycotoxin deactivators and acidifiers in the feed will help in reducing the mycotoxin problems.

#### **Feeding management:**

- During the monsoon season there will be high humidity in the atmosphere, and the floor in the feed plant/godown is also likely to be moist. Hence, the feed raw materials should be placed

on a high place like wooden tables instead of being placed directly on the ground.

- Feed bags and other feed raw materials should be kept 1-2 feet away from the wall in feed plants.
- Due to the possible disruption of road transport system due to heavy rains or floods, it is always advisable to store adequate feed for 4-5 days.
- In case of rainwater in the feed trough, the feed should be removed, and feeders should be cleaned thoroughly
- Do not store feed for more than 30 days during monsoon. This may lead to fungal growth and the formation of mycotoxins.
- Quality acidifier should be used in the feed to prevent the growth of fungus / mycotoxins in the feed due to high humidity in the atmosphere.

#### **Use of feed acidifier in poultry diets:**

Organic acids like benzoic, formic, propionic, and butyric acids etc. are commonly used in poultry diets as feed acidifiers. The supplementation of organic acids at the right doses in animal feed can increase the weight gain in pullets, improves feed conversion ratio, and reduces colonization of pathogens in the intestine. Almost all the organic acids used in animal nutrition, have an aliphatic structure, and represent a source of energy for the cells. Benzoic acid, instead, is built on an aromatic ring and has different metabolic and absorption characteristics.

#### **Using feed acidifier will have following benefits**

- Inhibition of gram-negative microflora in the gastro-intestinal tract
- Reduced pH, buffering capacity as well as antibacterial and antifungal effects in feed
- Improved protein digestibility & mineral bio availability
- Reduced subclinical diseases and general mortality in chickens

Acid	Diet pH effect	Effect on buffering	Action on bacteria	Action on yeasts	Action on molds	Palatability	Corrosion
Benzoic	+++	+++	++	+++	+++	0	0
Phosphoric	+++++	+++++	0	0	0	0	++++
Butyric (energy source)	0	0	0	0	0	+	+
Citric (energy source)	++	++	0	0	0	++	0
Formic	+++	++++	+	++	++	-	+++
Fumaric (energy source)	+++	+++	0	0	0	0	+
Lactic (energy source)	++	++	+	0	0	++	+
Propionic (energy source)	0	0	+	++	++	0	++

+ or - effectiveness  
0 indicates insignificant

- Reduces wet droppings and cracked/ dirty eggs problems

Organic acids with a high pKa value are weaker acids and therefore more effective preservatives for feed. A strong acid (with low pKa) will acidify the feed and the stomach but will not have strong direct effects on the microflora in the intestine. If we use salt forms of organic acids considerably higher dosages are needed in feed to get measurable effects on animal performance. The bactericidal effect of the organic acids is: benzoic acid > fumaric acid > lactic acid > butyric acid > formic acid > propionic acid. Benzoic acid is superior to other acids in exhibiting bactericidal effect on coliforms and other harmful bacteria in both stomach and small intestine.

#### Advantages of using Benzoic acid

- It is a long-established preservative in the feed industry and particularly effective against fungi and yeasts.
- Inhibits the growth of *Aspergillus flavus*, reduces the spore count and mycotoxin production. It blocks an enzymatic step in the biosynthetic pathway of mycotoxins.

- Better feed preservation can help improve intake and performance.

- Helps in reducing the number of many pathogenic bacteria like *Campylobacter jejuni*, *Escherichia coli*, *Listeria monocytogenes*, and *Salmonella enterica* etc.

- Moderates the gut microflora, thereby reducing dysbiosis and improving digestion.

- Reduce ammonia production providing better environment for the chickens and the farm personnel

- By including pure Benzoic acid (Vevovital) in poultry diets in this rainy season, producers can: improve the growth rate in pullets, enhance egg production & feed efficiency, reduced dirty eggs, or cracked egg problems and general mortality in layers.

Poultry farmers can overcome the problems during the monsoon season and reap good profits by taking appropriate precautions as described above.

**Note:** References available on request.

# The effects of phytogenic feed additives (Naturogen-510) on performance

by Gina Medina, L. Jungbauer and K. Wendler,

Delacon Biotechnik, Steyregg, Austria and C.W. Kang, Konkuk University, Seoul, South Korea.

The poultry industry today faces challenges such as rising feed and production costs apart from the demand of being one major source of animal protein in response to the growing global human population in the perspective of food safety and security.

The ban on the use of in-feed antibiotics in Europe has influenced the increasing awareness of the consumers for food safety and health risk. Documented negative effects of using antibiotic growth promoters in feed triggered the continuous evaluation of in-feed natural growth promoter as an alternative. For the last 10 years, the studies on the use and benefits of natural products in the animal industry increased significantly.

Phytogenic feed additives (PFA) are products of plant-origin that includes herbs, spices, essential oils and other plant extracts. PFA are known to stimulate digestive processes and to improve gut health. Increased nutrient digestibility is reflected in better animal performance.

Different effects of PFA compounds like antioxidative properties (especially monoterpenes thymol and carvacrol, flavonoids, anthocyanes), antimicrobial actions (phenolic compounds being the principal active components), growth promoting efficacy (for example stabilising feed hygiene, by affecting the ecosystem of gastrointestinal microbes, improving digestibility) and improvement of flavour and palatability of feed are reported for broilers.

In several publications Awaad et al. (2010), Jafari et

**Table 2. Effect on protein digestibility and energy availability.**

Treatments	Protein digestibility %	Energy availability %
T1 (Control/basal diet)	91.90	84.00
T2 (reduced nutrient density diet)	91.50	81.30
T3 (T1 + PFA at 150g/mt feed)	94.80	86.20
T4 (T2 + PFA at 150g/mt feed)	96.80	85.90

al. (2009) and Liu et al. (2010) show positive effects of plants and plant extracts on the immune response and antibody titers to NDV of broilers. The aim of the study was to determine the effects of phytogenic feed additive (Naturogen- 510) on zootechnical performance, immune response and nutrient digestibility in broilers.

## Materials and methods

A total of 840 male day-old Ross 308 male broilers were randomly distributed to four experimental treatments based on a 2x2 factorial design, supplementation of commercial phytogenic feed additive (Naturogen-

510) and the recommended and reduced dietary nutrient levels respectively.

Each treatment was replicated seven times with 30 broilers per replicate. The birds were fed with corn/soy starter (1-21 days) and finisher (22-35 days) mash rations for 35 days based on the following treatments:

- Basal/control diet (T1).
- Diet with reduced nutrient level (T2).
- T1 plus 150g of phytogenic feed additive (T3).
- T2 plus 150g of phytogenic feed additive.

The nutritional matrix of the tested PFA was considered in the formulation of the reduced nutrient density diet. Feed and water were provided ad libitum. Parameters measured were feed intake, body weight, feed conversion ratio, mortality, Newcastle disease virus antibody titer and protein and energy digestibility.

**Table 1. Zootechnical performance results**

Treatments	Day 1-35			
	ADG (g/d)	ADFI (g/d)	FCR (g/g)	Final body weight (g)
T1 (Control/basal diet)	48.01 <sup>a</sup>	91.88 <sup>a</sup>	1.92 <sup>a</sup>	1721
T2 (reduced nutrient density diet)	47.56 <sup>a</sup>	89.16 <sup>ab</sup>	1.88 <sup>ab</sup>	1656
T3 (T1 + PFA at 150g/mt feed)	50.41 <sup>ab</sup>	91.71 <sup>a</sup>	1.82 <sup>ab</sup>	1754
T4 (T2 + PFA at 150g/mt feed)	48.75 <sup>bc</sup>	87.68 <sup>b</sup>	1.80 <sup>b</sup>	1698

Values with different superscripts differ significantly at P<0.05

**Table 3. Approximate calculated nutritional content of the starter and finisher diets.**

Calculated nutritional content	Starter (1-21 days)		Finisher (22-35 days)	
	T1/T3*	T2/T*	T1/T3*	T2/T4*
TME <sub>n</sub> (kcal/kg)	3.100	3.045	3.150	3.100
Crude protein (%)	21.50	20.50	19.64	19.00
Ca (%)	1.00	1.00	1.00	1.00
Available P (%)	0.40	0.35	0.30	0.25
Lysine (%)	1.13	1.07	1.02	0.97
Cys+Met (%)	0.90	0.86	0.73	0.70

\* Recommended † Reduced

Broilers were inoculated with commercially available live NDV vaccine by intra- muscular injection on the 14<sup>th</sup> day of the experiment.

Blood was taken from the jugular vein from two weeks after injection. Serum samples were analyzed for anti-NDV antibody titers by ELISA with commercial kits, following the manufacturer's directions.

Feed samples were analyzed for nutritional content. Data were analyzed using a randomized complete block design following GLM procedure of SAS and statistical significance at P < 0.05.

### Results and discussion

The overall zootechnical performance effect on body weight, daily gain, feed intake and feed conversion ratio are shown on Table 1.

The treatment diets with PFA (T3 and T4) showed numerically higher final body weight than diets without PFA (T1 and T2) by 1.9% and 2.5% respectively.

Reduction on nutrient density level lowered feed intake and daily weight gain which resulted in significantly better feed conversion ratio (T1 vs T2). The addition of commercial PFA product either at the recommended /normal basal diet or at reduced nutrient density diet (Table 3) showed significant improvement in feed conversion ratio after 35 days by 5.2% and 4.2% respectively. The higher protein digestibility and energy availability on diets supplemented with PFA either at recommended or reduced nutrient density as reflected in (Table 2) might contribute to the better body weight and FCR.

An overall statistical analysis has shown that the addition of tested PFA (Naturogen-510) significantly improved (p=0.006) feed conversion ratio from 1.89±0.09g/g in the control groups to 1.80 ± 0.05g/g (-5%) in the groups with PFA on day 35. The results

**Table 4. Effect on antibody titer and mortality**

	ND titer (log <sub>2</sub> )	Mortality (%)
T1 (Control/basal diet)	2.29	7.62
T2 (reduced nutrient density diet)	2.00	5.71
T3 (T1 + PFA at 150g/mt feed)	2.57	6.67
T4 (T2 + PFA at 150g/mt feed)	2.43	4.76
Basal diet (control)	2.14	
Diet w/ PFA	2.50	

supported other studies conducted demonstrating the beneficial effect of phytogenic feed additives. PFA have shown to stimulate secretion of digestive juices, enhances activity of digestive enzymes and reduces intestinal ammonia formation. The increased secretion of digestive enzymes might improve nutrient breakdown and thus, increase availability and absorption of nutrients.

Based on the blood serum analysis for antibody titer against Newcastle disease virus, the addition of tested PFA at both control/basal diet and reduced nutrient density diets increased the amount of antibody by 12.2% and 21.5%, respectively.

Similarly, the same positive effect on mortality was reflected in diets with the PFA as shown on Table 3. The results demonstrated that PFA added to broiler diets can enhance immunological activity.

Liu et al. (2010) showed that the addition of plant extracts (Radix astragali, Radix codonopsis, Herba epimedii, Radix glycyrrhizae) to the drinking water improved immune response and increased antibody titers to NDV.

Awaad et al. (2010) showed that eucalyptus and peppermint oils are able to implement humoral immune response in chicks against ND. While Jafari et al. (2009) reported that the addition of fresh garlic to broiler diets has the potential to increase serum γ-globuline in broilers vaccinated against common broiler pathogens.

### Conclusion

This study has shown the beneficial and promising effects of phytogenic feed additive (Naturogen-510) on zootechnical performance, immune response and nutrient digestibility in broiler production.

*References are available from the author on request*  
For Further information Please contact :

**Dr. Parag P Mahadik** - 09421691240

Venkys india Ltd –

Venkateshwara House, S. No. 114/A/2, Sinhadag Road, Pune, Maharashtra 411030





Multi-purpose disinfectant



**ALL OVER  
ALL PURPOSE...**  
*There is nothing else to say...*



As timely tested & trusted brand  
against **Avian Influenza Virus**



- Complete & chemically balanced
- Biodegradable & high residual effect
- Effective on over: 20 virus families, 43 bacterial genera, 27 fungal genera
- Non toxic, non irritant & no obnoxious smell hence can be used in presence of birds
- Effective even at 400 ppm hardness & 5% organic matter

**A Well Proven Brand  
Since Two Decades.**



**VENKATESHWARA B.V. BIOCOPR PRIVATE LIMITED**

(An ISO 9001:2015, OHSAS 18001:2007 & GMP Certified Company)  
Venkateshwara House', S. No. 114/A/2, Pune-Sinhagad Road, Pune-411030  
Tel.: (020) 24251803, Fax: +91-20-24251060/24251077, Website: [www.venkateshwarabvbiocorp.com](http://www.venkateshwarabvbiocorp.com)



# KOLIN PLUS<sup>TM</sup>

A Greener Alternative to Choline Chloride



Helps in  
Fat metabolism



Helps in  
Fat mobilisation



Helps in optimum  
muscle growth



Convenient

Non-hygroscopic



Compatible

Suits with Premixes



Caring

No TMA,  
Non-corrosive



Cost Effective

Lower dosage

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





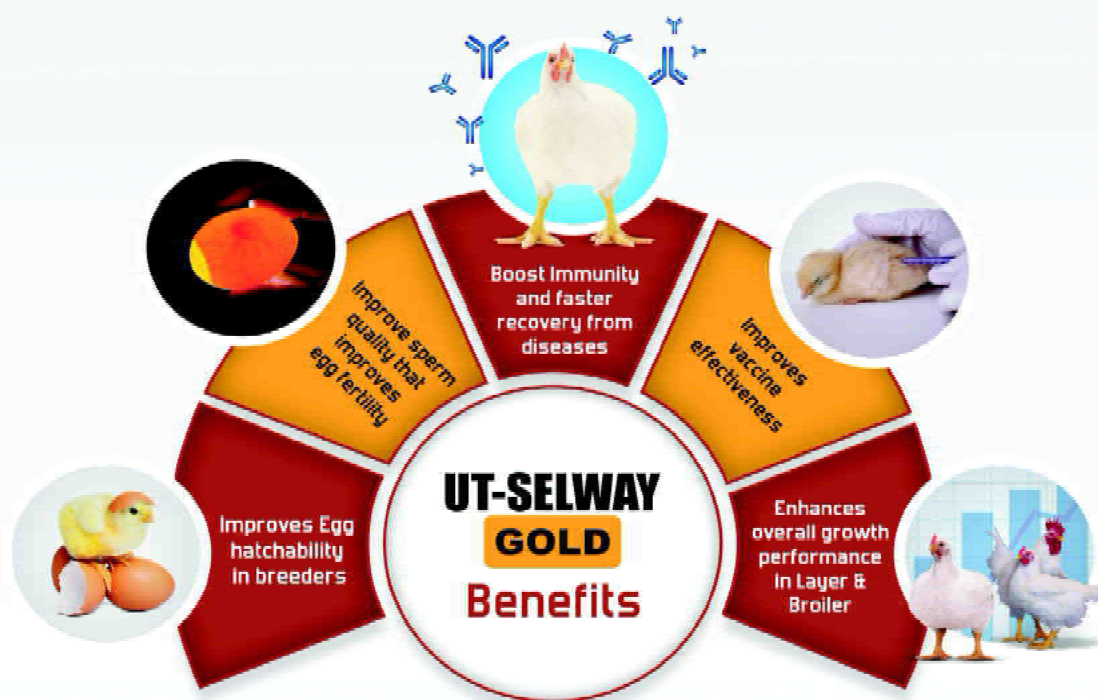
**Introducing** Liquid having combination of  
Organic Selenium & Organic Zn with Vitamin E.



For Better Absorption and Fast result

## UT-SELWAY GOLD

Organic Selenium & Organic **Zn** with Vitamin E.



**Organic Selenium**  
(Hydroxy Selenomethionine)-  
Highest bioavailability and 100% efficient

**Organic Zn (Zinc Glycinate)-**  
Highest bioavailability and absorption through  
intestinal wall which reduce Zn excretion.

**Vitamin E**

### Feature:

Only product  
available in  
market having  
unique  
combination of



### UTTARA IMPEX PVT. LTD.

Feed Supplement Division, Venkateshwara House, Pune.

**For trade Enquiry Contact :** North India – Mr. Hariom Singh Chauhan / +919552526901,  
West India – Mr. Kunal Goswami -/ +918888858839, T.N – Mr. Michaelamy -/ +918778408835,  
Maharashtra – Swapnil Ballal -/ +919609948713, Telangana/ Andhra Pradesh  
Orissa – Mr. Shankar Reddy -/ +918008802148

Supplier & Manufacturer-

**FARMCHEMIE**  
(Private) Limited



Selisseo  
inside

Selisseo is a trade mark of

**ADISSEO**  
A Bluestar Company  
Adisseo France SAS



Reveal  
your  
Hidden Performance



HUVEPHARMA NV • UITBREIDINGSTRAAT 80 • 2600 ANTWERP • BELGIUM • P +32 3 288 1849 • F +32 3 289 7845 • [customerservice@huvepharma.com](mailto:customerservice@huvepharma.com)  
HUVEPHARMA SEA • 42 • 'HARIDWAR' • ROAD 2A/B • KALYANI NAGAR • PUNE-6 • INDIA • P +91 20 2665 4193 • F +91 20 2665 5973 • [salesindia@huvepharma.com](mailto:salesindia@huvepharma.com)  
[www.huvepharma.com](http://www.huvepharma.com)

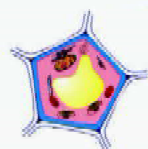




# WHY USE NRSBP™?



Standardized  
particle size  
ensures uniform  
flow & mixability



Phyto-actives  
protected in  
tonoplasts



High performance  
phytochemical  
fingerprinting ensures  
batch-to batch  
consistency



Analysed for  
microbial  
contamination



Compliant with  
standards for  
heavy metals &  
mycotoxins.



Thermostable

## NRSBP<sup>TM</sup>

### STODI<sup>®</sup>

Definite Diarrhoea Domination

### PHYTOCEE<sup>®</sup>

Natural Defence Enhancer

### KOLIN PLUS<sup>TM</sup>

Greener Alternative to Choline Chloride

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





# Omega Group Mumbai, India

■ Omega Weldedmesh Co. Pvt. Ltd. ■ Omega Farm Equipments  
Manilal & Co. ■ Vimal Agencies ■ Elite Wire Products  
Serving Poultry Industry since 1969.

**Poultry Cage Systems ■ For Commercial Layer ■ For Broiler Breeder ■ For Commercial Broiler**



**Cage Weldedmesh (Made out of High Quality 300 GSM Wire ONLY)**

■ Superior Welding Strength ■ Measurement accuracy ■ Resistance to Corrosion. ■ Customized Solutions



**G.I. Stand 'S' Frame**



**G.I. Stand 'A' Frame**



**M.S. Frame**



**G.I. Feeder**



**Feed Silo**



**PVC Feeder**  
100% Virgin Material



**Aluminum Feeder**



**Plumbing Unit**



**Nipple & PVC Pipe with Saddle**



**Water Channel**



**Chain Link**



**Side Mesh**



**Cage Mat**



**Egg Collection System**



**Auto Feed Trolley**



**Manure Collection**



**Cooling Pads & Fans**

**Administration Office :** 209, Sant Tukaram Rd., Iron Market, Mumbai - 400009, India

**Tel.:** +91 22 23486977, +91 22 23483664, +91 9324032420, +91 9324032419, +91 9833670617, Fax: +91 22 23481592

**E-Mail :** response@omegaweldmesh.com ■ vimal.omega@gmail.com ■ vinit.omega@yahoo.co.in ■ www.omegaweldmesh.com

**Manufacturing Unit :** Plot No. 22, Village Dhansar, Taluka Palghar, Dist. Thane - 401 404, INDIA ■ Tel.: +91 2525 240 995

# Hidden problem.

# Clear solution.



## MYCOSORB® A+

**Protect your birds from the dangers of mycotoxins.**

Mycotoxins impact animal health and your profits. Mycosorb® A+ from Alltech® decreases mycotoxin absorption within your birds, reducing the damaging effects of mycotoxins on their health and their production potential. The unique technology behind Mycosorb® A+ can help you fight the threat of mycotoxins in your bird feed.

Choose the best protection and keep your birds and your profits healthy with Mycosorb® A+ and Alltech®.

Find out more today. Visit [Knowmycotoxins.com](https://knowmycotoxins.com)

**Alltech®**  
**MYCOTOXIN**  
**MANAGEMENT**

[knowmycotoxins.com](https://knowmycotoxins.com)

**Alltech®**

 Alltech Mycotoxin Management  AlltechNaturally  @Alltech





**A unique anti-viral nutritional supplement**

A large, orange shield with a black border. Inside the shield, the words 'SELCON' and 'Forte' are written in a bold, black, sans-serif font. 'Forte' has a registered trademark symbol (®) to its upper right.

**SELCON  
Forte®**

**An Organic Selenium-Zinc-Yeast feed supplement  
fortified with Theaflavins, Copper & A Natural Vitamin-E substitute.**



(A/GMP, ISO 22000:2015, ISO 9001:2015, HACCP, HALAL & WASH Certified Company)

**[www.zeusindia.net](http://www.zeusindia.net)**

For any enquiries please mail to: [zbl@zeusindia.net](mailto:zbl@zeusindia.net)



# Duck Farming: to Double the Income of Farmers

<sup>S</sup>uraj Amrutkar<sup>1</sup>, <sup>S</sup>uhas Amrutkar<sup>2</sup>, <sup>B</sup>harti Deshmukh<sup>3</sup>, <sup>V</sup>inod Gupta<sup>4</sup> and <sup>S. K.</sup> Gupta<sup>5</sup>

1. Scientist, Poultry Science, SKUAST-J, Jammu.

2. SMS, Animal Nutrition, Parbhani Veterinary College, Parbhani, MAFSU, Maharashtra

3. Assistant Professor, GADVASU, Punjab

4. Senior Scientist & Head, KVK Samba, SKUAST-J, Jammu

5. Professor & Librarian, Medicine Division, SKUAST-J, Jammu

## Introduction:

Ducks are domesticated before 3000-4500 years. Ancestor of domestic ducks is wild mallard duck (*Anas boschos*) which are broody. Scientific name of domestic duck is *Anas platyrhynchos*. Duck farming is the part of poultry farming system. Duck can be raised for meat and eggs. In most part of the world, duck ranks next to the chicken in terms of egg and meat production. Commercial duck farming is increasing as this business has good potential to earn money through egg production. Duck can be feed on agro-industrial waste, swamp and marshy areas. These hardy birds can survive in such as areas where no other agricultural crops could be grown and other livestock raised. Duck farming business is a very profitable business as there are many duck breeds available all over the world. For commercial duck egg production and breeding, must go through water sources for raising ducks. It will reduce cost of feed. Duck can survive without water; but they need water pond kind things for fertile egg laying and mating. If pond is available then it is well and good for commercial duck farming. Chromosome number of duck is 80. Duck sound is whimpering or betch, honk. Incubation period of duck egg is 28 days. Egg weight duck is 72 gm.

## Advantage of duck farming:

- Duck lays more eggs per year and is bigger than a hen's egg.
- Duck lay egg well even in second year also
- Duck lay 95% of the eggs before morning



**Suraj Amrutkar**

- Duck require less number of management practices as they have diversified feeding habits, easily brooded and have good disease resistant
- Duck farming can flourish well on marshy lands
- The duck have shorter brooding period and grow quicker.

- Ducks have a longer life span and possess a longer production time of egg.
- Duck survive on a wide range of foods and they have a good trait of feeding themselves on insects, snails etc.
- Duck meat is delicious and has a great demand across the world except in places like India but its meat consumption is increasing day by day.
- Birds like chicken which cannot flourish in wet lands are ideal places for duck farming.

## Breeds of Ducks:

Duck breeds classified based on utility A) Egg type B) Meat type and C) Ornamental type

### A) Egg type:

#### 1) Campell:

- Introduced in 1901 as a result of crossing strains of fawn and white Runner, Mallard and Roven.
- Three varieties: Khaki, Dark and White
- Khaki is more popular for egg production.
- Average egg production of Khaki is 300 eggs.

- Female has light shade khaki body plumage which head, neck and wings is dark khaki.
- Male head, neck and wings drake feathers are histious green bronze colour.
- White Campel used as female line in table egg production.
- Body weight of male is 2.2-2.4 kg and female is 2.0-2.2 kg.

## 2) Indian Runner:

- Indian breed and lay about 250 eggs in a year.
- Drake weight: 1.6-2.2 kg, Duck weight: 1.4-2 kg
- White, Penciled and fawn are three varieties.
- Out-standing feature is perpendicular carriage with gives lean appearance with wedge shaped beak (Penguin like posture).

## B) Meat type Breeds:

*Pekin, Ayelsbury, Roven, Muscovy and Cayuga*

### 1) Pekin:

- Pekin is a Chinese breed and is most popular for meat.
- It has creamy white plumage.
- Yellow flesh.
- Long, broad and deep body.
- Bill and legs deep orange.
- It is fast growing and efficient feed conversion.
- Lays about 150 eggs during 1<sup>st</sup> year.
- At 6<sup>th</sup> week, body weight is 2.8 kg; Feed consumption is 6.4 kg and FCR is 2.2.
- At 8<sup>th</sup> week, body weight is 3.4 kg; Feed consumption is 9.73 kg and FCR is 2.7.

### 2) Ayelsbury:

- Plumage: White.
- Leg and feet: Bright Orange.
- Bill: Deep Orange.
- Delux table birds because of light bone and increase percentage of creamy white flesh.
- Male weight: 4.5 kg and Female weight: 4 kg.

### 3) Muscovy: (*Cairina Moschota*)

Native of South America but still doubt to be classified as duck or a goose. Origin from wild duck. No drake feather and grazes like a goose. No feathers on face and face skin is bright red in colour. Drake has a knob on head which give appearance of a crest. They differ in behavior, body size, clutch size, incubation period and chromosome number. Voice is not characteristic of sex and means of communication is hissing sound. Bill is either black or yellow with some red shade. Legs are yellow in colour. Male is as twice female size. Male weight is 4.5-6 kg and female size is 2.2-3.2 kg. Age of sexual maturity is 20-24 weeks. Life span is 8-10 years. Flesh is dark red in colour. 12 weeks age body weight is 3.5-4.5 kg. Egg production is 150-200. Egg weight is 65-75 gm. Have extra ordinary brooding capacity and good mother. If crossed with other breed produce mule duck and is hermaphrodite. It is resistant to Ranikhet disease. They can digest higher fibre feed; so expenditure is less on feed.

### 4) Roven:

Large duck of French origin. Good for roasting. Eggs are blue in colour although white shelled are not common. Male body weight: 4.5 kg and Female body weight: 4 kg

### 5) Cayuga:

It gives characteristic eggs when production begins. Eggs are partially blakish and become blue as it progresses. Male body weight: 4.5 kg and Female body weight: 4 kg

## C) Ornamental Breeds:

Call and Crested white are ornamental breeds.

## Breeding of Ducks:

Breeding principle same as chicken breeders; they are selected when they are 6-7 weeks of age. They are getting sexual maturity and lay eggs at 28 weeks of age. Mating ratio is 1: 6-8 for layers and 1: 4-5 for meat strain. Breeder for layer ducks produce

medium or small body female with increase rate of egg production and male with considerable potential for growth. Select breeder which is vigorous, good body weight, confirmation and feathering can be 2 or 3 way. Breeder for table ducks should aim to increase meat that can be produced for each kg of feed given, so individual selection for body weight done. In ducks, greatly strain must be produced from Pekin/Ayelsbury and pet strain. Economic traits like egg production, mortality and fertility have low heritable. So need family selection for improvement. Other traits like growth rate, body confirmation, sex maturation, egg size, shell size, shell quality *etc.* show high heritability, so individual selection done for improvement. Selection for progeny is done by trap nesting though egg production is of low heritability; family selection is needed for genetic improvement. But Black Campell breed which is having increase egg production record by individual selection followed. For ducks, trap nest is in the form of box / cage in to which female is placed each evening and following morning after proper recording each duck is removed. Nesting mat should be changed frequently or else mould may great occur. For pedigree breeding, egg type ducks are placed in cage with male at the rate of 6-8 in single cage and 4-5 female with 1 male in meat type. It should be wing banded during pedigree breeding period. Duckling should be reared individually and body weight recorded at 8<sup>th</sup> week. Egg production recorded by trap nesting. Keeping daily records of mortality and egg production. Day length has considerable effect. Total light period: 14-16 hours for satisfactory egg production.

### **Brooding Management:**

Brooding of duckling is easier than chicks as it requires less heat and shorter brooding period (0-2 weeks). Any brooder suitable for chicks can be used for duckling but half of its stocking density is recommended for ducklings. 500 capacity chicken brooder is suitable to brood 200-300 ducklings. The temperature under the hover should be 35°C for

the 1<sup>st</sup> week and then decrease 3°C every weak; until ducklings require no further heat *i.e.* 2-3 weeks age of brooding period. This depends upon season. Behaviors of the ducklings must be a guiding factor for adequacy of temperature. Chick guard must be used for 1<sup>st</sup> two weeks, in order to prevent the ducklings making litter wet. Feeders and waterers are kept outside of the brooder guard. Water drinks six times than feed. Infra red brooding can also do. 250 V bulb sufficient to brood 100-200 ducklings. Brooding house must be of concrete/ wire floor. In concrete floor, wood shavings can be used as litter materials.

### **Feeding of Ducks:**

Ducks are voracious eaters and foragers. Besides compounded feeds, snails, fingerlings, earth worm, insects and vegetation form part of life when reared in pond which decrease feed cost. Under intensive system of rearing; dry mash, wet mash, pellets or crumps may be given free choice. Wet mash given 5 times a day during brooding period; then 3-4 times and adult 2 times. Feed should be given sufficient for eating up to 10 minute only. Left over feed should be removed after each feeding. Ducks have difficulty in swallowing dry mash and also waste feed if given in dry form.

Pellet feeds are utilized more efficiently than mash, also reduction in wastage and easy feed consumption. **Starter** (0-2 week) are fed with pellet of 3.18mm. **Grower** (2-7 week) are fed with pellet of 4.76mm. **Young ducklings** fed with pellet size 3-5 mm.

### **Nutritional require ments:**

Niacin is very important for ducks, whose deficiency caused bowed legs and leg weakness because tryptophan is not converted to niacin in ducks. Duck is susceptible to Aflatoxin (by aspergillus). Ducks can tolerate to aflatoxin up to 30 ppb or 0.03 ppm as against 0.2 ppm (200 ppb) in chicken. So particular care should be taken that not to include mouldy grain and cake especially Ground Nut Cake in ration.

Constituent	Starter	Grower		Layer
	(0-2 weeks)	(3-8 weeks)	(9-20 weeks)	(>20 weeks)
M.E. (kcal/kg)	2750	2750	2700	2650
Crude protein %	20	18	15	18
Calcium %	0.8	0.8	0.8	2.5
Phosphorus %	0.45	0.45	0.45	0.45
Manganese (mg/kg)	100	100	100	100
Niacin (mg/kg)	60	60	60	60
Vitamin A	4000	4000	4000	4000
Vitamin D	600	600	600	1000

**Duck Manure Composition:** Duck manure contains 95% Moisture, 0.5- 0.6% Nitrogen, 0.5% Phosphorus and 0.1% Potassium.

#### Chemical composition:

Nutrients	Duck Egg	Duck meat
Moisture %	70.5	43.7
Crude Protein %	13.3	19.9
Fat %	14.5	35.8
Carbohydrate %	0.7	0.2
Ash %	1	0.4
Metabolizable Energy (Kcal/kg)	191	366

#### Constraint and Strategies of Duck farming:

- Lack of good quality of ducklings in the market
- Lack of quality feed for duck
- Lack of organized marketing system
- Indian people mostly do not use ducks for meat purpose. They don't have awareness about duck meat due to shortage of it.
- Breeding of ducks without water results in infertile eggs
- Duck consume more amount of food as compared to chicken and duck excrete wetter droppings, thus requiring more amount of water than chicken.
- Starting the business without knowing the market value of its meat and egg consumers in respective area.
- Irregular vaccination time may susceptible to many diseases.

- Lack of scientific knowledge may leads to heavy mortality and cause loss.

#### Diseases of Duck:

##### Duck Plague/ Duck Virus enteritis:

It caused by Herpes virus. It is an acute fetal disease affecting ducks as well as geese and other aquatic birds. Duck of all age are susceptible. Wild birds help in spread of disease. Recovered birds are carrier course of disease is 3-6 weeks.

**Symptoms:** First sign is presence of dead bird in litter and water. There is watery greenish yellow diarrhea, nasal discharge, ruffled feathers and wing droppings. A dirty appearance of head due to increase secretion from eye and nostril. A characteristic feature of the disease is swollen and protruding penis in male and severe production drop in female. Postmortem examination shows multiple or generalized hemorrhage in body organs.

**Treatment:** There is no treatment. Only vaccination. Strict sanitation and rearing. Duck without swimming in water prevent disease spread. Duck plague vaccine is available. Vaccination done 3 times: 4<sup>th</sup> weeks, 8<sup>th</sup> weeks and 24<sup>th</sup> weeks. Thereafter annual vaccination is done.

##### Afla toxicosis:

It caused by ingestion of aflatoxin. Toxin made by *Aspergillus flavus* from infected feed ingredients. Hot and humid condition favors toxin production.



*Ducks of all age are susceptible.* Symptoms are more pronounced in ducklings. Pelleting was destroying toxin in feed.

**Symptoms:** Decrease in feed intake, poor growth, falling of feather, lameness, purple discoloration of feet and legs. Develop ataxia followed by convulsion and death. Mortality occurs 95-98% (death within 48hrs).

**Prevention:** Regular monitoring of increase risk feed like Maize, Oil cake for their moisture content. Periodical cleaning of waterers and feeders. Avoid long time storage of feed and compounded feed. Remove contaminated feed from feed store. Improve environmental management and nutritional management. Binders (UTPP) can be added especially during monsoon. Use of toxin in-activator are useful for inactivation like  $\text{CuSO}_4$ , Gention violet, Propionica. Use of dietary additive like water soluble vitamin, Vitamin E, BHA, BHT etc. will interaction with toxin during metabolic process of feed will decrease toxic.

#### **Botulism/ Limber Neck:**

It caused by toxin liberated by *Clostridium botulism*. It is common in duck due to eating of decayed plant and animal waste. Affected ducks loose the control of neck muscle and are completely paralyzed just prior to death. Removal of dead birds and decayed vegetable in the premises will prevent disease. **No treatment.** Epsom salt in water for purgation.

#### **Salmonellosis: (Paratyphoid infection)**

Bacterial disease caused by Salmonella group except *Salmonella Pullorum*. Organisms are *Salmonella anata* and *Salmonella typhi murium* and *Salmonella enteritis*. Infection spread through ovary, through incubator, direct contact, infected feed, adult survivor acts as a carriers.

**Symptoms:** Decreased hatchability of infected eggs due to dead embryos.

**In young duckling symptoms:** dropping of wings, ruffled feathers, anorexia, increased thirst and watery diarrhea. Urate deposits in vent and feathers.

**Prevention and control:** Egg should be disinfected with formalin solution. Pelleting destroys salmonella infection. Furazolidone is to be used for treatment.

#### **Aspergillosis:**

Respiratory disease caused by *Aspergillus fumigatus*. Ducklings more than 2 weeks are more susceptible.

**Symptoms:** Labored breathing, appetite loss, emaciation. Birds may die after onset of symptoms.

**No treatment to prevent disease.** Hatching eggs should be properly cleaned and disinfected. Litter and feed should be dry and free from mould. Moldy litter should be removed.

**Pasteurellosis/ Duck cholera:** It caused by *Pasteurella multocida* and affect birds which are more than 4 weeks age

**Symptoms: Per acute form:** death without symptoms. Oozing of blood from nostril and mouth. Hemorrhage in gastro-intestinal tract can be seen.

**Acute form:** the bird show loss of appetite, increased thirst, ruffled feathers, mucus discharge from mouth, increased body temperature, diarrhea with mucoid droppings followed by light greenish diarrhea. **Chronic form:** Emaciation and swelling of neck joint

**Prevention and control:** Antibiotic effective. In endemic areas, birds should be vaccinated against disease. 1<sup>st</sup> at 8<sup>th</sup> week and 2<sup>nd</sup> at 16 week and repeated every 6 month interval.

**Duck Influenza:** It is caused by a different serotype of **avian influenza virus**.

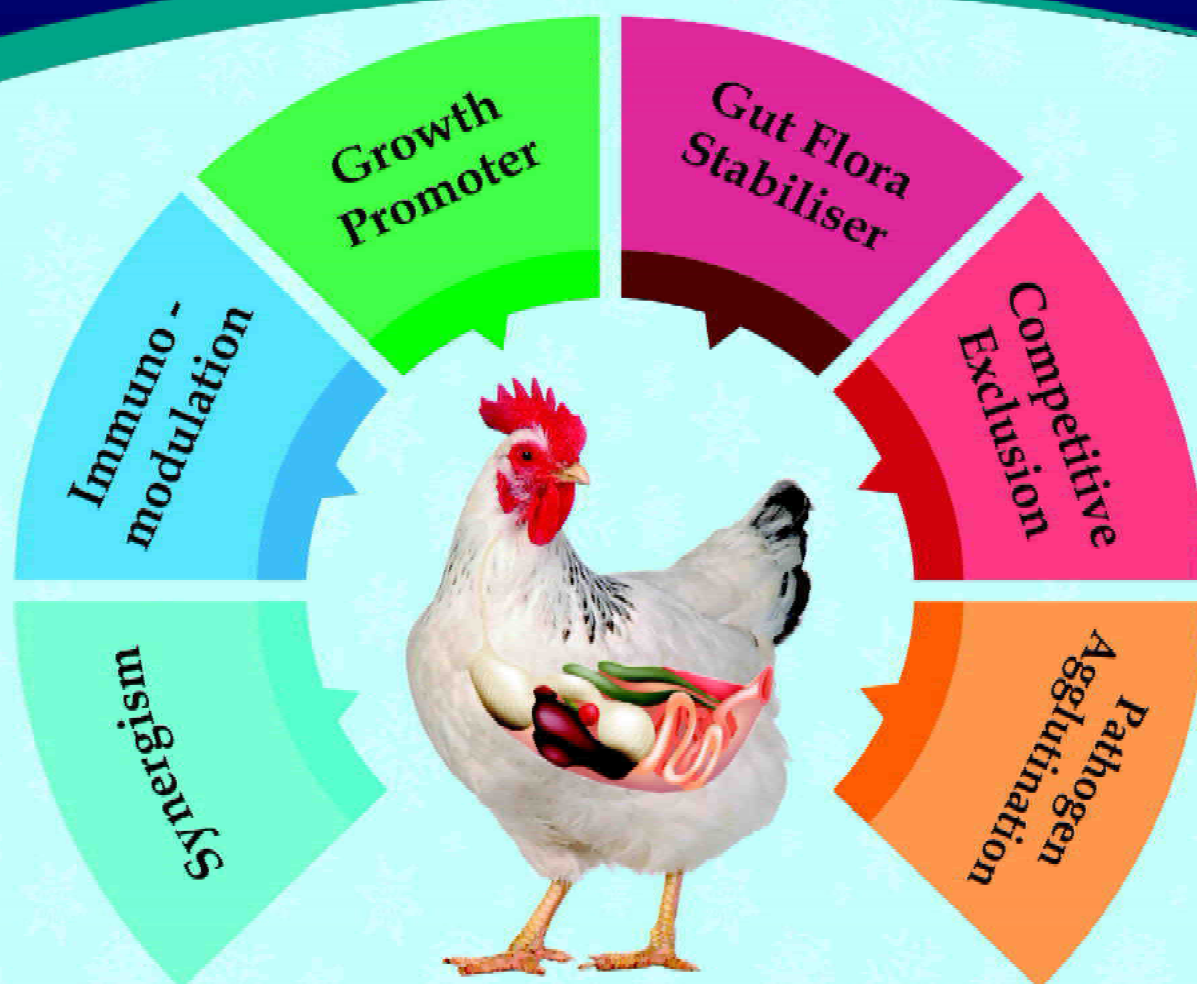
**Symptoms:** Inflammation of sinus, sinus are filled with exudate, nasal discharge, dirty feathers on both sides of head, sneezing difficulty in breathing, coarse respiratory sound, increase mortality.

**No vaccination.** Only antibiotic to prevent secondary infection. Overcrowding, poor ventilation, poor management condition needs to be corrected.

## BROILER LIFTING RATES FOR THE MONTH OF JUNE 2021

Place	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Hyderabad	93	95	95	97	99	104	104	109	109	109	100	90	90	92	94	99	104	106	106	106	96	98	101	101	101	101	103	105	105	107	109
Karimnagar	93	95	95	97	99	104	104	109	109	109	100	90	90	92	94	99	104	106	106	106	96	98	101	101	101	101	103	105	105	107	109
Warangal	93	95	95	97	99	104	104	109	109	109	100	90	90	92	94	99	104	106	106	106	96	98	101	101	101	101	103	105	105	107	109
Mahabubnagar	91	93	93	95	97	102	102	107	107	107	98	88	88	90	92	97	102	104	104	104	96	98	101	101	101	101	101	101	101	103	105
Kurnool	91	93	93	95	97	102	102	107	107	107	98	88	88	90	92	97	102	104	104	104	96	98	101	101	101	101	101	101	101	103	105
Vizag	91	93	93	95	97	99	99	101	101	101	92	92	92	90	100	102	107	109	109	109	109	111	111	111	111	111	113	115	115	117	119
Godavari	87	89	89	91	93	95	95	97	97	97	88	82	82	94	86	92	97	99	99	99	99	101	101	101	101	101	101	101	103	105	
Vijayawada	87	89	89	91	93	98	98	100	100	100	91	85	85	84	89	95	100	102	102	102	102	104	104	104	104	104	104	104	106	108	
Guntur	87	89	89	91	93	98	98	100	100	100	91	85	85	87	89	95	100	102	102	102	102	104	104	104	104	104	104	104	106	108	
Ongole	87	89	89	91	93	98	98	100	100	100	91	85	85	87	89	95	100	102	102	102	102	104	104	104	104	104	104	104	106	108	
Namakkal	74	77	79	81	84	84	86	99	91	91	72	62	62	62	62	76	87	89	89	89	94	96	96	96	92	76	76	80	92	95	

# NAGRONEX® - SNB



***The Novel Synbiotic***

[www.provet.in](http://www.provet.in)

[f provetppl](#) [m provetppl](#) [in provetppl](#)

**Provet Pharma Private Limited**

Lamba's

New Ray in Poultry Nutrition...

# Rovitex™

Nutritionally Balanced Feed

World Class 7.5% and 10% Concentrates

## Broiler Concentrates:

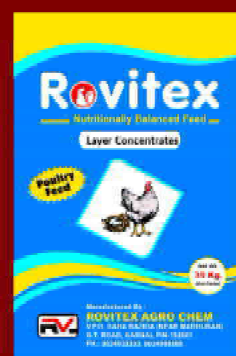
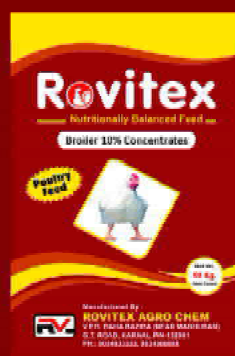
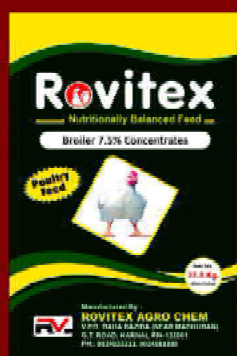
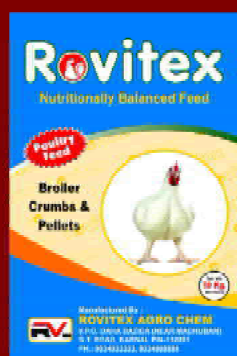
- ❖ Broiler 10% Concentrates
- ❖ Broiler 7.5% Concentrates
- ❖ Broiler 5.5% Concentrates
- ❖ Broiler 3.5% Concentrates
- ❖ Broiler 2.5% Concentrates
- ❖ Broiler 1.5% Concentrates

## Layer Concentrates:

- ❖ Layer 5% Concentrates
- ❖ Layer 10% Concentrates
- ❖ Layer 25% Concentrates
- ❖ Layer 35% Concentrates

## Broiler Crumbs/Pellets:

- ❖ Broiler Pre-Starter Crumbs
- ❖ Broiler Starter Crumbs
- ❖ Broiler Finisher Pellets



## ROVITEX AGRO CHEM

H.O.: R.A-548, SADAR BAZAR, GANDHI CHOWK, KARNAL 132001 (HARYANA)

WORKS: V.P.O. DAHA BAZIDA (NEAR MADHUBAN), G.T. ROAD, KARNAL 132001 (HARYANA)

Ranjeet Singh Lamba: +91-99917-11111, 90349-33333

Samarjeet Singh Lamba: +91-90349-88888, 95410-22000

E-mail: rovitexagrochem2016@gmail.com, lamba122117@gmail.com

Dealers enquiries solicited from unrepresented areas



≡ OPTIMA ≡

An ISO 22000:2005, HACCP Implemented  
and FAMI-QS Certified Company

Increase your **profit** through  
**innovative enzyme** solution from Optima



**OPTIMA LIFE SCIENCES PVT. LTD.**

PNO 47/2/2, BL 44, LIC Colony, Parvati, Pune - 411009, Maharashtra.  
Tel: +91 8380012872, 020-24420720 | [info@optimalife.in](mailto:info@optimalife.in) | [www.optimalife.in](http://www.optimalife.in)



# SAI KRISHNA

## POULTRY EQUIPMENTS



Chick Feeder



Egg Tray



Chick Feed Tray



Chick Drinker



Drinker  
( Assemble Valve System )



Deluxe Drinker  
( Standard & Large )



Feeder



Gas Brooder



Chain Link Mesh



Jumbo Drinker



## SAI KRISHNA PLASTIC INDUSTRIES

Manufacturers of Plastic Poultry Equipments

Factory : Behind Petrol Bunk, Padmanagar, Karimnagar - 505002, Tel : 0878 - 6504508, Mobile : 98490 59508  
Sales Depot : Plot No : 11, Road No:2, Opp : Nimanthran Function Hall, Mamatanagar Colony, Nagole, HYDERABAD - 68. (A.P),  
Tel : 040 64610508, Mobile : 92466 59508, E-mail : info@saikrishnapoultry.com, Web : www.saikrishnapoultry.com

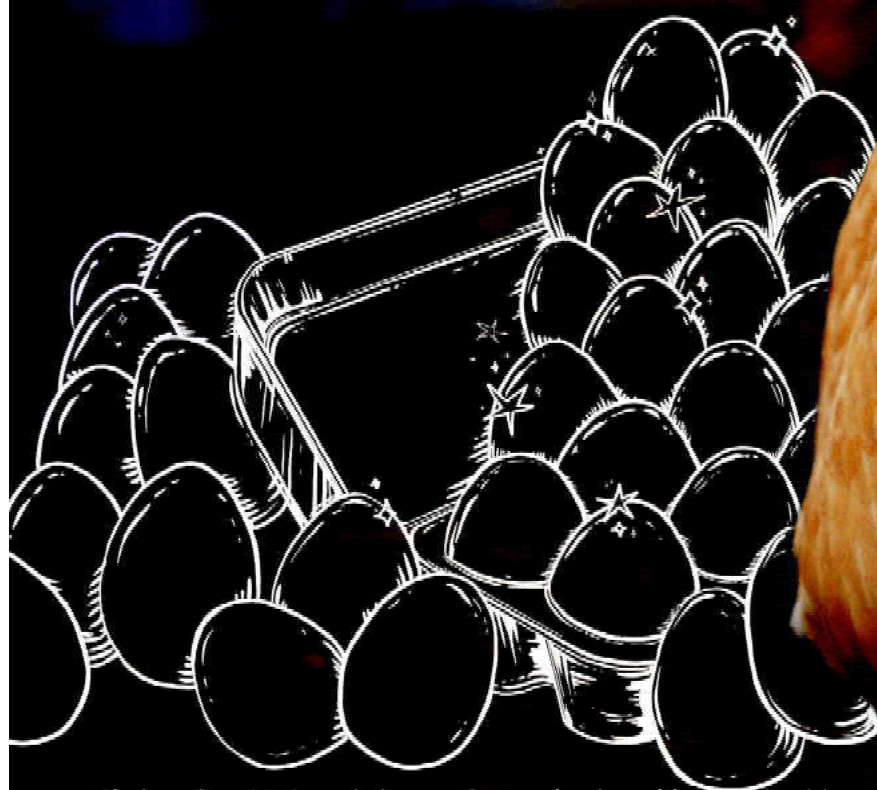


# Reducing food loss and waste

We're focusing our passion and expertise on using micronutrition to improve the quality of meat, milk, fish and eggs, to help reduce food loss and waste.

We are transforming animal nutrition and health to build a sustainable future, responsibly.

*If not us, who? If not now, when?*  
**WE MAKE IT POSSIBLE**



Find out how DSM can help transform animal nutrition and health sustainably at [www.dsm.com/wemakeitpossible](http://www.dsm.com/wemakeitpossible)

NUTRITION • HEALTH • SUSTAINABLE LIVING



# Biotronic® Top3

the breakthrough  
in pathogen control!



The **Permeabilizing Complex™** blend in Biotronic® Top3 weakens the outer membrane of Gram-negative bacteria, thus boosting the synergistic effect of its components, the organic acids and the phytochemical.



[biotronictop3.biomin.net](http://biotronictop3.biomin.net)

Naturally ahead

≡ **Biomin®** ≡

## **E. coli and Antibiotic Resistance: Impact on the Poultry Sector**

Medicated chicken feed has led to antibiotic resistant strains of E.coli. Acidifiers in poultry feed can reduce antibiotic resistance and help control disease.

By Francesco Castellone

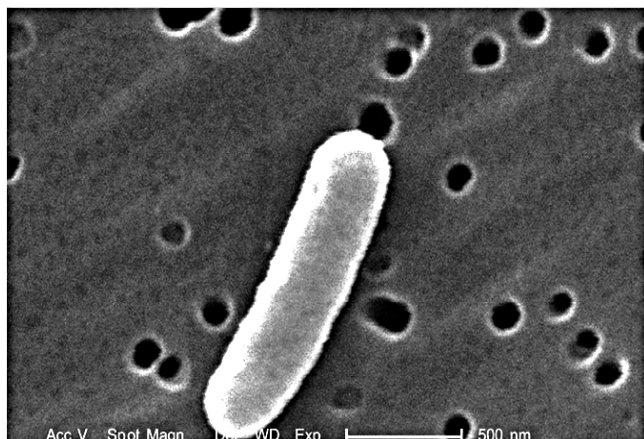


*Escherichia coli* is a gram negative, non-spore forming bacillus and it is a common inhabitant in the intestinal tract of poultry. These bacteria survive for long period outside their host and are present in all bird environments, particularly the litter, and in poultry house dust, which may contain  $10^5$ -  $10^6$  E. coli/g. Feed and feed ingredients are often contaminated with pathogenic coliforms and are a common source for introducing new serotypes into a flock (Martins Da Costa et al. 2006).

### **In Brief**

- E. coli is common in poultry, and feed is frequently contaminated.
  - Resistance to fluoroquinolone antibiotics, which has been used to control E. coli infection, is high.
  - A permeabilizing complex, organic acids and cinnamaldehyde (Biotronic Top3) can reduce the prevalence of antibiotic resistance E. coli in cecum of broiler, compared with enrofloxacin.
- All ages are susceptible to colibacillosis, but young birds are more frequently affected and disease severity is greater in young birds, including developing embryos (Goren E., 1978). Outbreaks can occur in caged layers (Vandekerchove, D. et al., 2005) and coliform salpingitis/peritonitis is a common cause of mortality in breeders (Jordan et al., 2005). Colibacillosis in older birds is often manifested as an acute septicaemia.

*Escherichia coli* do not invade normal bird tissues, but are present in the environment and exploit weaknesses in bird defences caused by other infectious agents (viruses, bacteria, parasites and **mycotoxins**) environmental stress such as temperatures extremes or poor management.



***Escherichia coli***

### ***E.coli* and Antibiotic Resistance**

Since their discovery in 1928 by Alexander Fleming, the antibiotics have been widely used for the treatment of disease, disease prevention and growth promotion in food-producing animals. During the last decades, excessive reliance on antibiotics in human and animal medicine has contributed to creating favourable conditions for the selection, persistence and spread of antibiotic resistant bacteria.

Consequently, antibiotic resistance has become a global concern not only in human but also in animal health. It has been highlighted in various studies that the antibiotic resistance bacteria generated at farm level may spread to humans through direct contact, contamination of the meat or environmental pathways.

The public concern is even greater where the application of antibiotic classes in food producing animals have a therapeutic useful analogue in human medicine, such as fluoroquinolones. Enrofloxacin is a representative fluoroquinolone prescribed by veterinarians to reduce the early chick mortality and for the reduction of the spread

of pathogens (i.e. *Escherichia Coli*). This antibiotic has been widely overused in poultry and it is licensed in many countries, including in the EU. As a result, *E. coli* resistance to fluoroquinolone antibiotics has increased significantly since their introduction into medicine and agriculture in the late 1980s.

The European Union decided to ban the antibiotic as growth promoters for veterinary use in 2006, and there has been an additional trend towards overall **antibiotic reduction**. Poultry producers were the category most affected by the ban of the EU commission. For many years, the farmers relied on antibiotics to improve performance and reduce the early chick mortality. Since then, producers have been searching for alternatives.

One alternative to antibiotics against Gram-negative bacteria is the use of organic acids containing cinnamaldehyde as feed additives. In order to facilitate the passage of the organic acids and cinnamaldehyde across the *E. coli* membrane, it is necessary to combine with them a permeabilizer, which damages the outer membrane (permeabilizing complex). It is important that the acids, cinnamaldehyde and permeabilizing complex are sequentially released along the gastrointestinal tract by a carrier. This formulation has been considered for the development of Biotronic Top3.

### **Effect of Biotronic Top3 vs. Enrofloxacin on the Prevalence of Antibiotic Resistance to *E. Coli* in Broilers**

Fluoroquinolones are used to treat and prevent poultry diseases worldwide. Fluoroquinolone resistance rates are high in their countries of use. In this study was evaluated the effect of **Biotronic Top3**, as well as fluoroquinolone antibiotics (Baytril), on the prevalence of antibiotic resistant *E. coli*.

The trial was carried out at the Centre of Applied Animal Nutrition in Mank, Austria, where 480 mixed-sex, one-day-old broiler chickens (Ross 308) were randomly assigned to three treatments. From the

day of hatch, each group was treated according to the following design:

- Control group: negative control fed on basal diet
- Feed Additive group: fed on basal diet supplemented with Biotronic Top3 2 kg/t of feed

- Antibiotic treatment group: same diet as the control group, but 10 mg enrofloxacin per kg body weight (Baytril, 10% oral solution) was provided via drinking water from d 14 to d 16 of the trial, before the change to the grower diet

The results of this study showed that the microbiological analysis of control groups on d 17 and 38 of the trial show decreased numbers of *E.*

	Control	Biotronic Top 3 2 kg/t	Baytril (10%)	P value
<b>E.Coli</b>	8.09 ± 0.19	7.90 ± 0.14	7.76 ± 0.34	0.35
<b>Ampicillin – resistant E. Coli</b>	7.05 ± 0.28	6.87 ± 0.14	7.03 ± 0.23	0.81
<b>Cefotoxamin – resistant E. Coli</b>	2.13 ± 0.82	2.14 ± 0.59	0.00 ± 0.00	0.007
<b>Ciprofloxacin – resistant E. Coli</b>	6.90 ± 0.66	7.04 ± 0.47	7.68 ± 0.36	0.014
<b>Streptomycin – resistant E. Coli</b>	6.62 ± 0.18	6.97 ± 0.17	7.47 ± 0.12	0.004
<b>Sulfomethoxazole – resistant E. Coli</b>	6.85 ± 0.21	7.10 ± 0.17	7.59 ± 0.13	0.020
<b>Tetracycline – resistant E. Coli</b>	6.83 ± 21	6.97 ± 18	7.55 ± 15	0.024

Table 1. *E. coli* count in cecum on d 17, log CFU/g.

	Control	Biotronic Top 3 @ 2 kg/t	Baytril (10%)	P value
<b>E.Coli</b>	8.25 ± 0.20	8.24 ± 0.12	8.46 ± 0.16	0.59
<b>Ampicillin – resistant E. Coli</b>	7.08 ± 0.31	5.28 ± 0.41	6.91 ± 0.31	0.002
<b>Cefotoxamin – resistant E. Coli</b>	3.09 ± 0.87	1.04 ± 0.52	0.24 ± 0.24	0.018
<b>Ciprofloxacin – resistant E. Coli</b>	5.83 ± 0.28	5.68 ± 0.12	7.36 ± 0.33	0.001
<b>Streptomycin – resistant E. Coli</b>	5.42 ± 0.23	5.05 ± 0.27	6.12 ± 40	0.07
<b>Sulfomethoxazole – resistant E. Coli</b>	5.62 ± 0.36	5.16 ± 0.28	6.48 ± 0.34	0.034
<b>Tetracycline – resistant E. Coli</b>	6.18 ± 0.27	5.28 ± 0.23	6.91 ± 0.35	0.003

Table 2. *E. coli* count in cecum on d 38, log CFU/g.

	Control	FA	AB	P value ( $\leq 0.05$ )
Initial weight (g)	46 $\pm$ 0.0002	46 $\pm$ 0.0002	46 $\pm$ 0.0002	1
Body weight @ 38 days (g)	2070 $\pm$ 0.03	2250 $\pm$ 0.03	2170 $\pm$ 0.03	0.0001
ADG @ 38 days (g)	53.19 $\pm$ 0.67	57.98 $\pm$ 0.04	56.02 $\pm$ 1.17	0.017
FCR @ 38 days	2.07 $\pm$ 0.07	1.80 $\pm$ 0.04	2.02 $\pm$ 0.09	0.029

**Table 3. Performance characteristics of broilers receiving feed additive based on organic acids – Biotronic Top 3 (FA) and enrofloxacin (AB) compared to the control group.**

*coli* resistant to ciprofloxacin, streptomycin, and sulfamethoxazole ( $P > 0.05$ ) with time. The level of ampicillin- and tetracycline-resistant *E. coli* in the Biotronic Top3 group was significantly lower ( $P < 0.05$ ) than in the other 2 groups (Table 1 & 2). However, microbiological analysis at the end of the trial showed that, the level of cefotaxime-resistant *E. coli* was lower in the Baytril group compared to other groups, similar to the results for d 17.

Consequently, it has been noticed that the dietary supplementation of Biotronic Top3 increased the broiler performance parameters compared to the control group and this data were statistically significant. From table number 3 it is very clear that the animals fed with Biotronic Top3 were heavier than the control group and the FCR was lower.

However, the average daily weight gain was higher in the Biotronic and antibiotic group compared to the control.

It is important to highlight that the group treated with enrofloxacin had a lower body weight compared to the Biotronic Top3 group, although the average daily weight gain increased compared to the control group.

### Conclusion

Supplementation of broiler diets with Biotronic Top3 reduced the level of antibiotic resistant *E. coli* in the cecum of broilers compared to control and Baytril groups. A significant reduction in total *E. coli* count was not observed in the present study. Therefore, a possible selective effect of Biotronic Top3 on resistant *E. coli* should be investigated further.

**M.A. Waheed**



# S.S. Associates

## SHR PACKAGING



D.No.1-2-405, Gaganmahal, Domalguda, Hyderabad - 500029

**Cell: 78931 40260**



***Alltech ONE Ideas Conference provides exclusive access to insights from agri-food experts***



***The Alltech ONE Ideas Conference offers on-demand insights from leading experts in agriculture and beyond.***

The Alltech ONE Ideas Conference, June 22–24, united thought leaders and changemakers virtually for an exploration of the power of science, sustainability and storytelling.

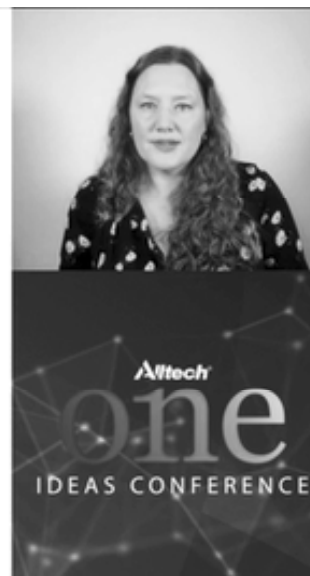
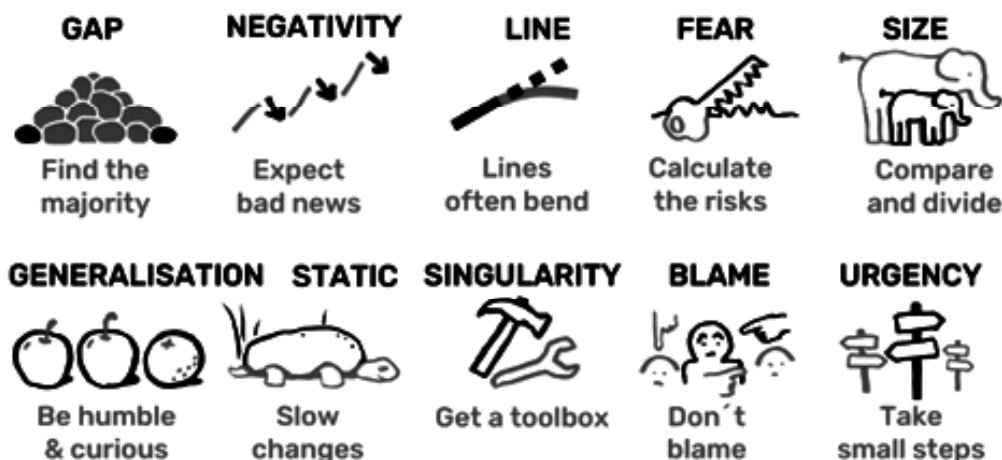
More than 10,000 attendees from 101 countries joined the event to enjoy 70 presentations from 90 renowned speakers. It was a week of innovation, inspiration and motivation.

“We are on the brink of a new beginning, and I don’t believe that is just a new beginning for Alltech. I think it’s a new beginning and a new golden era for agri-food, and it’s led by what we believe is a bold vision,” said Dr. Mark Lyons, president and CEO of Alltech, in his opening remarks. “We want to deliver smarter, more sustainable solutions for our customers and for all of agri-food.”

**Anna Rosling Rönnlund**, vice president and head of design and user experience at Gapminder and co-author of “Factfulness,” was one of the opening keynote speakers on Tuesday, June 22. Rönnlund designed the user interface of the famous animated bubble-chart tool Trendalyzer, which helps people better understand global development trends. The tool was eventually acquired by Google and is now used by millions of students across the world. “A lot of things are actually improving, but we’re very bad at seeing these slow trends on a global level,” said Rönnlund. “We need to have a fact-based worldview, and we need to remember that we need to keep upgrading our worldview because the world changes, and so have our facts about it.”

As a professional photographer, filmmaker and former photojournalist for National Geographic, **Dewitt Jones** has made a career of storytelling

# Factfulness 10 instincts



through images and has travelled the world on a mission to find the extraordinary in the ordinary. Through his compelling stories and captivating photography, Jones shared how changing your lens can change your life. “These are turbulent times, and the waves of change seem to threaten our very survival. So, what will your vision allow you to see?” Jones asked during his keynote presentation. “Will you look out at a dim, half-coloured world where dreams disappear in the distance — a world where goals don’t even seem worth striving for? Or will your vision allow you to see a world still full of beauty and joy and possibility?”



## Announcing Acutia Brain Health!

On the inaugural day of the conference, Nikki Putnam Badding, registered dietitian nutritionist and director of Acutia, announced the expansion of its

product line with the launch of Acutia Brain Health. The supplement supports cognitive health and brain function while also providing antioxidant benefits and essential nutrients.



“When it comes to our priorities in life, our day-to-day concerns can often take precedence over our long-term goals. We are constantly focused on what is happening right now, in our careers, families, social lives and more. Very rarely do we take the time, or even get the opportunity, to take a step back and look at the bigger picture. However, when we do get to take this broader view, it is only then that we begin to observe the issues that not only affect ourselves but the world and the people around us. And not only can we identify these challenges, but we can also engage with them and develop the opportunities and solutions that will help us all for generations to come”. This was one of the main themes of “Economics and Health: A Natural Connection,” an in-depth keynote discussion between Alltech president and CEO Dr.

Mark Lyons and Irish economist, author and university lecturer **David McWilliams** during thesecond day of the conference.

A professor of nutrition and former member of Parliament in Kenya, **Dr. Ruth Oniang'o**, in her keynote session, discussed the five transformative ways to solve hunger in Africa. Stressing that a holistic approach should be the future vision, she highlighted thoughts onfemale empowerment, promoting adult literacy, direct resource provision for farmers, soil health and building and supporting smart partnership. Ruth said, "By investing in a farmer, we invest in the future of Africa. That's how we transform the future of food: one farmer at a time."

In closing, Dr. Lyons asserted that no industry could have a more positive impact on the future of the planet than agriculture.

"I believe the agriculture industry will create climate-neutral food," said Dr. Lyons. "We will continue to be one of those core industries that can sequester carbon, and we will be a big part of the answer to climate change."

"It's the industry that I'm most excited about, and it's a great honour to be working in this industry," Dr. Lyons shared. "We can nourish the world while cooling its climate. We can leave not a footprint but a legacy. What an extraordinary opportunity as we all gather, working together for a Planet of Plenty™."



On the finalday,June 24, **Shirzad Chamine**, neuroscientist and CEO of Positive Intelligence, Inc, spoke on how to boost your positive Intelligence through mental fitness. "Moment by moment, one day at a time, that muscle of positivity builds," Chamine reminded viewers at ONE. "And then, the contagion effect that you create in the world — you have no idea how powerful that is. You create a

contagion, (but) rather than a contagion of negativity, you intercept that, and you create a positive contagion. And it's beautiful, as you become part of the solution rather than part of the problem in our world," said Shirzad, emphasizing seeing challenges as opportunities and pursuing greater happiness and success through the power of Positive Intelligence.

Over the course of the Alltech ONE Ideas Conference, more than 70 on-demand presentations explored challenges and opportunities in aquaculture, beef, business, crop science, dairy, equine, health and wellness, pet, pig, and poultry sectors.

Registrants engaged virtually in many ways during the Alltech ONE Ideas Conference, including the ONE FUNdraising Run, the Alltech Ideas Hub and expert-led mixology sessions.

Registration for the Alltech ONE Ideas Conference will remain open, offering attendees 24/7 access to all on-demand content, including keynote presentations and tracks, until April 2022.

#### -Ends-

**Contact:** Dr. Manish Chaurasia, Marketing Manager, South Asia

mchaurasia@alltech.com; +91 8130890989

#### About Alltech:

Founded in 1980 by Irish entrepreneur and scientist Dr. Pearse Lyons, Alltech delivers smarter, more sustainable solutions for agriculture. Our products

improve the health and performance of plants and animals, resulting in better nutrition for consumers and a decreased environmental impact.

We are a global leader in the animal health industry, producing additives, premix supplements, feed and complete feed. Strengthened by more than 40 years of scientific research, we carry forward a legacy of innovation and a unique culture that views challenges through an entrepreneurial lens.

Our more than 5,000 talented team members worldwide share our vision for a Planet of Plenty™. We believe agriculture has the greatest potential to shape the future of our planet, but it will take all of us working together, led by science, technology and a shared will to make a difference.

Alltech is a private, family-owned company, which allows us to adapt quickly to our customers' needs and maintain focus on advanced innovation. Headquartered just outside of Lexington, Kentucky, USA, Alltech has a strong presence in all regions of the world. For more information, visit [alltech.com](http://alltech.com), or join the conversation on [Facebook](#), [Twitter](#) and [LinkedIn](#).

 <b>S.S. PACKAGINGS</b>	 <b>SRI LAKSHMI PACKAGING COMPANY</b>
<p><b>Mfrs.:</b> <b>Corrugated Boxes, Cores Pulp trays, Coir</b></p>	<p><b>Mfrs.:</b> <b>Corrugated Chick Boxes &amp; Hatching Egg Box Paper Pulp trays, Coconut Coir</b></p>
	
<p><b>Contact : T. Subramanyam</b> <b>Managing Partner</b></p>	<p><b>Contact : P. Someswara Rao</b> <b>Managing Partner</b></p>
<p>H.No. 5-011/6, Ramireddy Nagar, IDA, Jeedimetla, Hyderabad-500 055. Email: slpc.2002@gmail.com</p>	<p>Plot No. S-15 to S-18, Rami Reddy Nagar, IDA, Jeedimetla, Hyderabad-500 055. Email: slpc.2002@gmail.com</p>
<p><b>Cell: 98660 75805 Fac. : 040-23095996</b></p>	<p><b>Cell: 98491 09478 Fac. : 040-20005996</b></p>

*Srinivasa*



**Hy-Line®**

## Delivering Performance and Sustaining Growth!

More profits for the farmers,  
better nutrition for all.

**A ROBUST**  
layer that delivers:

- 1 PROLIFIC**  
Egg Numbers
- 2 PERSISTENCY**  
For Long Single-Cycle Production
- 3 EXCELLENT**  
Egg Shell Strength
- 4 EFFICIENCY**  
Great feed savings resulting in  
profitability. More Eggs on Less Feed



**Hy-Line®**  
**W-80**

*Srinivasa Farms™*

**Srinivasa Farms Private Limited**

(CIN No: U01222TG1983PTC003979)

Regd. Office:

Plot No. 82, Kavuri Hills, Phase II,  
Madhapur, Hyderabad - 500081,  
Telangana, India.

Tel: +91 40 23633500 / 501  
E-mail: [contact@srinivasa.co](mailto:contact@srinivasa.co)  
Url: [www.srinivasa.co](http://www.srinivasa.co)

Follow us on



Telangana,  
Srinivas Rao Vemula, ☎83745 63007

AP, North Karnataka & Odisha  
Shailendra Karuturi, ☎90006 58835

Tamil Nadu & South Karnataka  
Dr. Muthuramakrishnan, ☎75488 50453

Maharashtra, Gujarat, Madhya Pradesh,  
& Chattisgarh,  
Dr. Balaji Chate, ☎91210 20298

West Bengal & North East  
Saikat Ray, ☎98312 39390

North India  
Dr. Vikas Chaurasia, ☎81069 72007





*Precession in  
Technology,  
Efficiency in  
Results*

## Concentrated Mix of essential oils

FROM ITALY

# MixOil®

*...part of your success*

Effective  
Substitute of grow  
promoting antibiotics  
and Strengthens  
immune system for  
Poultry (Proven in India  
since 2014)

Available in India

**MixOil Powder :** Micro encapsulated special technology slow and gradual release components.


**MixOil Liquid :** For fast results in acute conditions in water.

**For Details Contact:** South Asia Region  
**Ramddas N.**  
Cell : 9848413213  
nramdas@hotmail.com



[info@awpint.com](mailto:info@awpint.com)

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

A.W.P. srl - via IV Novembre, 23  
41051 Castelnovo Rangone (MO) Italy 



# nu▶start

Vitamin/Mineral Soluble Power

## *Profit Defender*

NuStart is a concentrated water-dispersible nutritional supplement Of **Essential Vitamins, Organic Trace Minerals** with Built-in **Acidifiers and Electrolytes**.



- Product from USA
- Best supportive solution for different type of **Lameness, Stress & Immunity**
- Work as **Nutritional Booster** in readily available water soluble form
- Best in class **Bioavailability**
- Helps to Improves Productivity
- Helps Chicks **Livability and Growth**
- Work as tonic following multifactorial **Infectious, Nutritional Deficiencies and Stress Factors**



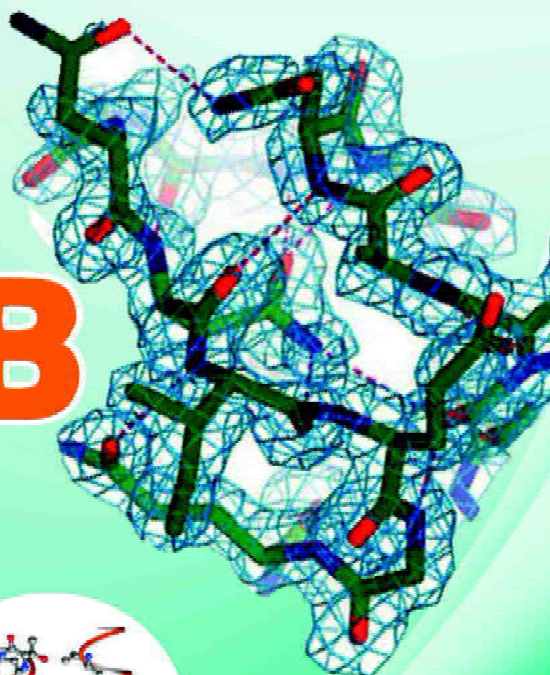
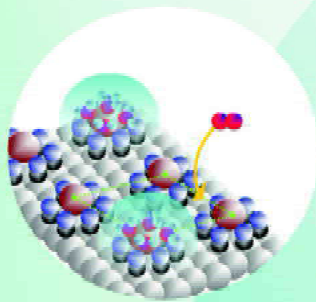
Distributed by: **NuTech Bio Sciences Pvt.Ltd.**  
07-17/3, (3rd Floor, Beside SunCity Nursing Home),  
SunCity Mail Road, Bandlaguda, Hyderabad - 500 086  
M : 8124840326

Manufactured by: **NuTech BioSciences Inc.**  
537 Fitch Street,  
Oneida NY 13421. USA  
www.nutechbiosciences.com. 315.505.6500



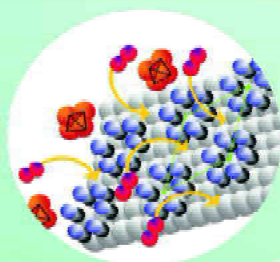
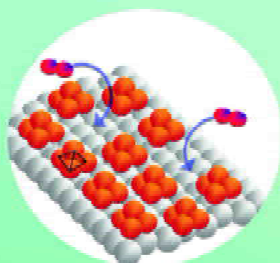
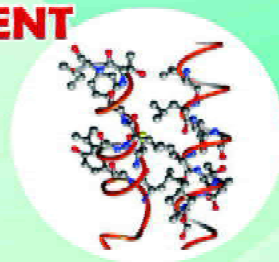
Marketed by:  
**Bhuvana NutriBio Sciences**  
E-7, 2nd Floor, Opp. Gate No. 1, Market Yard,  
Glutekadi, Pune - 411037. (India)  
M : +91 9850979652, 9396686500

**Better Nutrition Through Biotechnologies**



# EXOSORB BIOTECH

**POULTRY FEED SUPPLEMENT**



**A  
Multi Toxin Binder  
FOR  
BREEDERS, BROILERS  
AND  
LAYERS**

**A Unique Combination of  
HSCAS, Phyllosilicates, MOS,  
Lipotropic Agents, Organic Acids,  
Activated Charcoal (IP Grade) and Copper.**

Marketed By:

**Exotic**  
Biosolutions Pvt. Ltd.

311, 3rd Floor, Ascot Center Co-op Soc.ltd.,  
Sahar Road, Opp ITC Maratha Hotel.  
Near Hilltone Hotel, Andheri (East),  
Mumbai - 400099. Maharashtra, INDIA  
TEL.: (022) 28200426/27/28.  
E-mail: info@exoticbiosolutions.com  
www.exoticbiosolutions.com

Manufactured By:



**Exotic**  
MUSHROOMS



Manufacturing Unit is certified  
for leading Industry Standards





## Our objective: 100 % well vaccinated birds

Our Ceva Hatchery Immunisation Control Keys Program is a 5 point program to improve the quality of vaccination:

•Vaccine Care•Vaccination Techniques• Equipment Care•Audit and Monitoring•Expertise and Education

### Ceva Polchem Private Limited

Premises No. 101, First Floor, Phase II, Manikchand Galleria,

Model Colony, Shivajinagar, Pune- 411016, India.

Tel.: +91 - 20 - 2567 0606, 2567 0607.

E-mail : sales.ind@ceva.com Website : www.cevapolchem.in



# Avsorb Forte

A COMPLETE TOXIN BINDER FOR ANIMAL FEEDS

- Composed of Calcium montmorillonite, activated carbon and a blend of organic acids
- Effective against a wide range of mycotoxins including aflatoxins, T-2 toxin, deoxynivalenol, zearalenone etc
- Provides protection against chemical pesticide toxins and bacterial endotoxins
- Inhibits growth of moulds and controls further production of mycotoxins in feed
- Nutrient sparing effect



**ISO 9001**  
certified by  
**DNV-GL**

**ISO 22000**  
certified by  
**DNV-GL**

**GMP**  
certified by  
**DNV-GL**

CELEBRATING  
**25**  
YEARS

**Avitech**<sup>®</sup>

Knowledge | Nutrition | Innovation

**2021**



## Selection of organic Trace Minerals

Trace minerals play an important role in the body. Though required only in small quantities as compared to other nutrients, their deficiency may cause poor health and impaired performance. A trace mineral deficiency in the diet can reduce production efficiencies by 20-30%. As a result, trace element supplementation in animal diets has long been used to ensure rapid development, enhanced reproductive health, and improved immune response (Overton and Yasui., 2014).

Over the years trace elements have been supplemented in animal feeds as inorganic salts such as sulphates and chlorides. However, the bioavailability of trace elements from these inorganic sources is relatively lower than that of minerals

from feed and fodder sources (Spears., 2003). Recent studies in mineral research indicate that absorption and utilization of trace elements is higher if they are supplemented in an organic form.

### ORGANIC TRACE MINERALS

The classification of Organic trace minerals as done by the Association of American Feed Control Officials (AAFCO, 1998) is tabulated below. According to AAFCO organic minerals are metal ions chemically linked to an organic molecule such as an amino acid which forms a chemical structure with unique characteristics bringing about stability and high mineral bioavailability.

### CLASSIFICATION OF ORGANIC TRACE MINERALS (AAFCO, 1998)

Class	Definition
Metal polysaccharides	Metal polysaccharide complexes are formed by complexing of a soluble salt with a polysaccharide solution, e.g., Zn or Mn-polysaccharide complex.
Metal Proteinates	The product resulting from the chelation of a soluble salt with amino acids and /or partially hydrolysed protein. e.g., Cu, Co and Mn proteinates.
Metal amino acid Complex	The product resulting from complexing a soluble metal salt with an amino acid (s), e.g., Zn-Amino acid complex, K- Amino acid complex, and Cu-Amino acid complex.
Metal (Specific Amino Acid) Complex	The product resulting from complexing a soluble metal salt with a specific amino acid. Minimum metal content must be declared. When used as commercial feed ingredient, it must be declared as specific metal, specific amino acid complex: e.g., Cu-lysine, Zn-lysine, Mn- methionine.
Metal amino acid Chelates	Metal amino acid chelates are available for Zn, Cu, Fe, Mn and Co in addition to the macro-minerals like Ca and Mg. The product resulting from the reaction of a metal ion from a soluble metal salt with a mole ratio of one to three (preferably two) moles of amino acids to form coordinate covalent bonds. The average weight of the hydrolysed amino acids must be approximately 150 and the resulting molecular weight of the chelate must not exceed 800 Da.

## FACTORS AFFECTING THE ABSORPTION AND BIOAVAILABILITY OF ORGANIC TRACE MINERALS

### Size

- Molecular size is a major factor in determining the bioavailability of organic trace mineral.
- The molecular size of organic trace minerals depends on the nature of the ligand and the molecular ratio of ligand to the metal.
- The variations in the molecular size of an organic trace mineral affects its bioavailability and consequently its ability to influence animal performance.

### Solubility

- Solubility of an organic trace mineral is a key determinant of bioavailability.
- Organic trace minerals that have low solubility in the intestine are not absorbed efficiently.
- The solubility of an organic trace mineral generally decreases as the size of the ligand increases from a single amino acid to a dipeptide, tripeptide, and so on. If the size of the ligand exceeds a tetra or pentapeptide, the ligand is almost insoluble in the intestine.

### Specificity

- Metal specific amino acid complexes result from complexing a soluble metal salt with a specific amino acid. They combine a specific single amino acid with a single metal ion to form a specific chemical entity. The end product is a new molecule containing one ion of the metal and one molecule of the specific amino acid.
- An organic trace mineral containing only a small and specific ligand such as a single amino acid is likely to be absorbed intact, leading to a better bioavailability.

- Studies evaluating the effect of amino acids and some “derivatives” on copper absorption showed that, in general, the Copper complexes of monomeric (one) amino acids are better absorbed than dimeric (two) or trimeric (three) or polymeric (four or more) amino acids (Kirchgessner and Grassmann, 1967, 1969).

### Stability

- The effectiveness of organic trace minerals is attributed to the association of the metal with the ligand. It is therefore imperative for the metal-ligand complex to remain stable in the digestive tract.
- The pH in the digestive tract varies between 2 and 7. This means, that when ingested by an animal, an organic trace mineral faces the challenge of an acidic to a neutral environment.
- This change in pH levels influences the stability of the organic plex as a reduction in pH leads to an increase in dissociation of the mineral and the ligand.

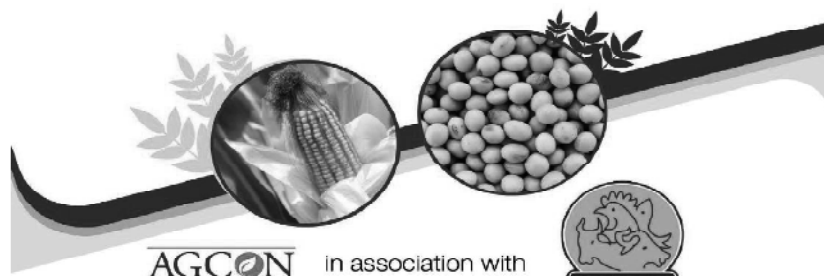
Organic trace minerals have a higher bioavailability resulting in better animal performance, health, production and immune response. Critical factors such as size, solubility, specificity and stability of an organic trace mineral ensure optimum absorption and bioavailability. If such factors are not taken into consideration, a deficiency in trace minerals may result in sub optimal performance affecting growth, egg production, milk production and more.

**Avitech®**  
Knowledge | Nutrition | Innovation

**Avitech Nutrition Pvt Ltd**  
(ISO 9001, ISO 22000 and GMP certified)  
Email: [marketing@avitechnutrition.com](mailto:marketing@avitechnutrition.com)  
Website: [www.avitechnutrition.com](http://www.avitechnutrition.com)

# Webinar on Maize & Soybean Market Driving Factors & Price Outlook 2021

CLFMA OF INDIA, the apex organization and the voice of the Country's dynamic livestock industry in association with AGCON (a subsidiary of NCML) organized Webinar on Maize & Soybean Market Driving Factors & Price Outlook 2021 on July 9, 2021



## Webinar on **Maize & Soybean: Market Driving Factors & Price Outlook'2021**

9th July 2021 | 4pm - 5:45pm

### Agenda

- 4:00 – 4:05 PM : Introduction - Vijay Makhija
- 4:05 – 4:10 PM : Welcome address - Neeraj Kumar Srivastava
- 4:10 – 4:25 PM : Maize Production Estimates Rabi 20-21, Soybean & Maize Outlook Kharif 21 - Nalin Rawal
- 4:25 – 4:40 PM : Market Driving Factors & commodity price outlook for Soybean - Suresh Akkineni
- 4:40 – 4:55 PM : Market Driving Factors & commodity price outlook for Maize - Sreedhar Nandam
- 4:55 – 5:40 PM : Panelist Views, Q&A session - A. Janakiraman, Gaurav Mittal, Sandip Guha
- 5:40 – 5:45 PM : Vote of Thanks - Suresh Deora ( Hon. Secretary, CLFMA )

### Our Speakers



**Nalin Rawal**  
CEO,  
NCML AGCON



**Suresh Akkineni**  
Asst. VP  
- Commodity Research,  
NCML AGCON



**Sreedhar Nandam**  
Head  
- Research & Consulting,  
NCML AGCON



**A. Janakiraman**  
General Manager  
- Soya Business,  
Supurna Foods Pvt Ltd



**Gaurav Mittal**  
Head  
- Central Buying Organization,  
Godrej Agrovet Ltd



**Sandip Guha**  
Chief Procurement Officer,  
Nervetech Group



**Neeraj Kumar Srivastava**  
Chairman,  
CLFMA OF INDIA



**Suresh Deora**  
Hon. Secy,  
CLFMA OF INDIA



**Dr. Vijay Makhija**  
Managing Committee Member,  
CLFMA OF INDIA

Please register at :

<https://us02web.zoom.us/join/register/tZAkc-qhT4pGtxRCKq86mhbfGVcjrJAFM35>

www.ncml.com | @NCMI Social

The main objective of the webinar is to discuss the Maize Production Estimate Rabi'2021 & Soybean & Maize Outlook Kharif'21, Market Driving factors and Price outlook for Maize and Soybean was discussed in detail.

The webinar was started by the moderator **Dr. Vijay Makhija**, Managing Committee Member, CLFMA OF INDIA. **Mr. Neeraj Kumar Srivastava**, Chairman, CLFMA OF INDIA delivered the welcome address and initiated the proceedings of the webinar. He introduced the agenda by giving the preface of the webinar, Spotlitged the topics along with statistics which bound the participants to the webinar. Highlighted the existent Government policies, Challenges, limitations, export potentials, Facts, and Overview of the industry, he also accentuated the CLFMA of India initiatives which helped to mitigate the risk and solve the challenges.

**Mr. Nalin Rawal**, CEO, NCML AGCON discussed about Maize Production Estimate Rabi'2021, Soybean & Maize Outlook Kharif'21. The highlights of the session are:

### Maize:

- Maize acreages are lower by current Rabi season by 4.2%. & Production of Maize during the current Rabi season is lower by 9.5% in comparison to Rabi 19-20.

- Rainfall activity is subdued during second fortnight of June resulting in lower sown acreages
- Soybean acreages are 42% lower in comparison to last year during same time period, however under normal rains, total acreages are expected to be higher by 10-15% in comparison to last year
- Maize sowing ahead by 16% vis-à-vis last year as on date however planting to be expected lower by 5-10% during Kharif.
- Using remote Sensing technology and satellite, based indices acreage and crop production forecast can be done more accurately

### Soyabean:

- Poultry industry is adversely affected by the rates of soybean, higher the soybean rates higher will be the cost of production
- Crop may be improved if Monsoon conditions goes in favourable.

- Movement of people to alternate proteins are due to high soyabean prices and is generally towards cotton DOC, Groundnut DOC etc
- Demand will remain subdued for next 3 months for soy DOC.

**Mr. Suresh Akkineni**, Assistant AVP, Commodity Research, NCML AGCON presented the Soybean-Market driving factors and Price outlook. The major highlights of the session are

- Global soybean end stock 2021-22 season 4.45 MMT (as per USA front, Brazilian front, Argentina front and Chinese front).
- Global Soymcal end stock 2021-22 shall increase marginally by 0.11 MMT.
- Soybean prices are likely to be subdued around INR 8000 levels and ease lower towards INR 6500-6000 levels.

**Mr. Sreedhar Nandam**, Head Research & Consulting, NCML AGCON discussed about Global maize market driving factors, and said the following

- 63 MMT downward revision in production estimates in last one year.
- Ending stocks for global corn 281 MMT, high probability of LA-NINA to resurface.
- 40% of the US corn crop exposed to drought.
- Game changers in corn trade may include push of green fuel mandates, Export tax increase, COVID impact, Asian Swine Flu.
- Global demand to grow by 4%, Opening stocks to decline by 17%.
- Maize acreages lower by 4.2 %, Production in current Rabi lower by 9.5 %.
- Taking look at ethanol policy in 2020-21, it is estimated that India would blend 332 Cr litre of Ethanol which is 8.5 % of blending %.
- ENA production from molasses will be lower



### Highlights of Panellists-

**Mr. A. Jankiramana**, GM, Soya Business, Suguna Foods Pvt. Ltd.

- Due to Export- supply tightness observed
- Poultry industry adversely affected by the rates of soybean, higher the soybean rates higher will be the cost of production
- Crop may be improved if Monsoon conditions goes in favourable phase.
- Movement of people to alternate proteins, due to prices generally to cotton DOC, Groundnut DOC etc

- Demand will remain subdued for next 3 months for soy DOC.

**Mr. Gaurav Mittal**, Head, Central Buying Organization, GAVL

- Feed sector- input prices went up by approx. 30% in maize and 70% in soybean.
- Weather can affect most on prices, supply side is most critical element in balance sheet
- Chinese demand is key driver in prices in global markets.
- Brace for volatility, buyers have to be cautiously bold for prices, and focused on supply side.

**Mr. Sandip Guha**, Chief Procurement Officer, Noveltex Group

- Impact due to covid- distraction in supply and demand situations.
- Weather related events- rains are erratic in various areas, farmer may shift to soybean from Maize
- Demand drivers- Poultry, egg, Starch is in spotlight.
- Export programme for maize and soybean are optimistic and attractive
- We should be able to mitigate risk, especially from market view, develop solid market linkages and be ready with multiple formulation for challenging times, proper capital allocation, need for scientific forecasting for better procurement.

**Mr. Amit Sachdev**, Regional Consultant – South Asia (Bangladesh, India, Nepal, Sri Lanka),  
U S Grains Council

- India may not be able to export much due to Dollar value.
- Indian Maize prices may move up, it may depend on the alternate grain option available, and how much industry can replace.
- Pressure on Indian corn may be high.

**Mr. Jason John**, Team Lead -India at U.S. Soybean Export Council (USSEC)

- Last year we were not able to fetch grain from any South Africa, Myanmar due to political situations
- Spotlighted GM/Non-GM crops, Digestible proteins.
- There will be some supply pressure from South Africa in coming years.

**Mr. Suresh Deora**, Hon. Secretary, CLFMA OF INDIA extended his warm regards and vote of thanks to all panellists, Speakers and participants and concluded the webinar.

**V. Yadagiri Reddy**  
Chairman & Managing Director



**VENCOB**

Broiler Chicks & Hatching Eggs

Ph: (O) 27564077  
27562730  
Fax : 040-27566959

**SREE LAKSHMI HATCHERIES PVT. LTD.**

3-4-812, Flat No. G-13, Venkatadri Paragan Apartments, Barkatpura, Hyderabad - 500 027.

E-mail: slhpl@hotmail.com



# Technical Update

Srinivasa



## MANAGEMENT OF POULTRY DURING RAINY SEASON

India receives 75–80% of its annual rainfall via southwestern monsoons, lasting from June through September. Monsoon season typically begins in the state of Kerala and slowly progress across India, reaching the far north by mid to end of June. High heat, high humidity, extensive clouding, and several spells of moderate to heavy rain with strong surface winds are the chief characteristics of monsoon season. There is a significant fall in temperature at the commencement of the rainy season (3–6°C); however, a subsequent rise in temperature whenever there is break in the monsoons and rain does not occur for several days. This rise in temperature is associated with high humidity, which causes significant risk of severe heat stress, especially at the start of the season and between monsoon breaks.

Month	Weather Conditions	Heat Stress
June	High humidity, high temperature	Heat stress due to high humidity
July	High humidity, slight decrease in temperature	Heat stress due to high humidity
August	High humidity, moderate temperature	Monsoon breaks bring heat stress
September	High humidity, moderate temperature	Monsoon breaks bring heat stress

Monsoon conditions favor replication, growth, and spread of pathogens such as viruses, bacteria, and fungi, as well as vectors like flies, mosquitos, and other vermin.

### Most common disease outbreaks during rainy season:

Viral Diseases	Bacterial Diseases	Others
Fowl pox	Salmonellosis	Mycotoxycosis
Gumboro	<i>E. coli</i> infection	Coccidiosis
Newcastle	Fowl cholera	Round and tapeworm infestation
Avian Influenza	Chronic respiratory disease complex	
	Gangrenous dermatitis	
	Clostridial enteritis	
	Infectious coryza	

### Key Management Practices for the Rainy Season:

- Check for and repair any leaks in the roof or walls.
- Prepare side curtains to keep rain from entering the shed. Take special precautions to protect the feeder from rainfall due to high wind gusts.
- Ensure drainage systems are working properly before the rainy season to allow for proper run off rainwater. Water stagnation near sheds creates a breeding ground for vectors.
- Brooding chicks in winter is always a challenge. Rainwater splashing inside and high humidity with poor ventilation can increase the ammonia level inside the shed. Moreover, as coal used for brooding is detrimental to young chicks, keep the side curtains closed tightly to avoid rainwater entering the shed. Allow a 1–2 foot opening at the top of side curtains during the day to ventilate ammonia and other undesirable gases out.



Figure 1. Brooding shed with curtains.

- Wet litter is the main challenge during rainy season. The main causes for wet manure are the birds (infectious/nutritional), as well as direct water entering onto manure either by leaky nipples or rainwater splash. Once the litter moisture exceeds 250g/kg, its cushioning, insulating, and water holding capacity is compromised and manure becomes wet. Replace any leaking nipples to avoid wet manure. Rainwater entering the manure pit should be strictly controlled or entirely prevented. High moisture levels in the manure allow for germination of spores, multiplication of vectors (flies, insects), and promote other pathogen growth. Contaminated rainwater may contaminate borewells and nearby water bodies.



Figure 2. Bottom mesh and side curtains.

- Due to the change from hot and humid weather at the beginning of winter, birds can feel heat stress; double-check the water flow at the nipple and ensure a minimum 60 ml/minute for birds under heat stress.
  - Larva control is the key to fly control during the rainy season (for more information, see [Fly Management: Surveillance and Control](#) at [hyline.com](#)). Wet manure is the perfect environment for larva multiplication. Larvicides can be used to great effect in conjunction with preventive measures to keep manure dry.
  - Wet manure with larva in absence of a bottom mesh will attract wild birds. Utilizing a bottom mesh wall prevents entry of wild birds, which will have close contact with the flock. Preventing wild bird contact prevents potential disease outbreaks such as bird flu.
  - Feed ingredients should be kept in waterproof conditions. Increases in moisture level increase the risk of some mycotoxin contaminations in feed. Waterproof conditions of the feed mill, feed bin, and feeders inside the shed should be ensured. Feed and feed ingredients should be stored on slats to avoid direct contact with surfaces.
- 
- High relative humidity, direct exposure of the feeder to rainwater, and caking of feed in the feeder can lead to the formation of some mycotoxins, which negatively impacts the flock. Remove old and caked feed from the feeder regularly. Regular complete cleaning of the feeder is recommended. Avoid leaving excess feed in the feeder.
  - Inclusion of toxin binders in the feed is highly recommended, especially during this season, as the environmental conditions will favor mycotoxin contamination.
  - Water quality can be easily affected during rainy season especially surface water. Chances of *E. coli* outbreaks are higher during high temperature and humidity, as bacteria and other germs can multiply quickly, leading to increased infections in chickens. Contaminated water sources can also cause outbreaks, so it is essential to maintain regular water sanitation. Clean pipelines thoroughly, as this will help in reducing the biofilm levels inside the line, which are a source of contamination.
  - High relative humidity and temperatures, especially between June and August, can cause high mortality due to heat stress. This condition is primarily associated with the lack of adequate air speed. Use enough fans to ensure the shed is well ventilated, a speed of 3.5m/s is recommended for sufficient cooling. Fogger usage should be minimal during this period.
  - Rodent activities increase during monsoon season as a result of local crop growth. Increased rodent activity leads to increased transmission of disease. Strict rodent control measures should be implemented during this period and vegetation close to the poultry house and farm should be cleared regularly.
  - With the rainy season comes a reduction in daylength. Flocks in the growing stage and starting production face the challenge of poor stimulation resulting in delayed onset of production. Light stimulate the flock on time; delaying the stimulation will delay the flock coming into production. Dirty bulbs should be cleaned as they reduce the brightness. Follow the Hy-Line recommended lighting program to prevent issues concerning delayed onset of production.



Figure 3. A clean surrounding area for rodent control.

- During rainy season, due to high relative humidity, birds experiencing heat stress will decrease their intake. Careful monitoring of feed and nutrient intake is especially important during heat stress conditions and especially surrounding peak production. Remember to reformulate all nutrients according to the decreased feed intake, including the vitamins and trace minerals premix.
- Rains can affect brooding conditions, and lack of ventilation increases ammonia levels inside the shed. Monitor the shed temperature and humidity often and adjust temperatures based on chick comfort to ensure quality care for young chicks. Side curtain height can be adjusted to control ammonia buildup inside the shed.
- Pullets grown in summer and early rainy season will have low body weights and poor uniformity if they are not provided balanced feed and adequate spacing. Poorly conditioned flocks with low body weights and uniformity are likely to face delayed onset of production. Moreover, feed intake may not be adequate to support the rising nutrient needs during the production jump. It is very important provide a pre-peak diet during this period to ensure adequate nutrient intake and support production.



Figure 4. Dirty (left) and clean bulbs (right).

***The key to minimizing the negative effects of the rainy season is to anticipate and implement appropriate management and nutritional measures prior to the start of the rains.***

## RESOURCES AVAILABLE AT [WWW.HYLINE.COM](http://WWW.HYLINE.COM)

[Corporate Information](#) | [Technical Updates](#) | [Videos](#) | [Interactive Management Guides](#)  
[Hy-Line International Lighting Programme](#) | [Hy-Line EggCel](#) | [Body Weight Uniformity Calculator](#)

## TECHNICAL UPDATES

### Diseases

An Overview of Focal Duodenal Necrosis (FDN)  
 MG Control in Commercial Layers  
 Colibacillosis in Layers: An Overview  
 Fowl Pox in Layers  
 Avian Urolithiasis (Visceral Gout)  
 Infectious Bursal Disease (IBD, Gumboro)  
 Fatty Liver Hemorrhagic Syndrome  
 Infectious Laryngotracheitis (ILT)  
 Intestinal Dilation Syndrome (IDS)  
 Newcastle Disease  
*Mycoplasma Synoviae* (MS)  
 Low Pathogenic Avian Influenza (LPAI)

### Diagnostic Samples and Breeder Flock Monitoring

*Salmonella*, *Mycoplasma*, and Avian Influenza  
 Monitoring in Parent Breeder Flocks  
 Proper Collection and Handling of Diagnostic Samples

### Management

Growing Management of Commercial Pullets  
 Understanding the Role of the Skeleton in Egg Production  
 The Science of Egg Quality  
 Understanding Poultry Lighting  
 Understanding Heat Stress in Layers  
 Infrared Beak Treatment  
 Feed Granulometry and the Importance of Feed Particle Size in Layers  
 Impact of Tarp Colour on Poultry Lighting  
 SPIDES (Short Period Incubation During Egg Storage)  
 Fly Management: Surveillance and Control  
 Optimising Egg Size in Commercial Layers  
 Vaccination Recommendations  
 Egg Drop Syndrome (EDS)  
 Managing Fully Beaked Flocks  
 Thiamin Deficiency in Pullets  
 Understanding Nesting Behaviour

**Srinivasa**



**Hy-Line**

© 2021 Hy-Line International

TU RAIN INDIA 071421



# AP ACHIEVERS

## BEST ROSS® 308 AP ACHIEVERS IN JUNE 2021

Company : Japfa, Narayangaon

Farmer Name : Mr. Sagar Babasaheb Pawase | Shed : EC – Shed

June 2021	Top#1
Chicks Placed	15970
Mean Age	33.0
Avg Body Wt	2280
FCR	1.41
cFCR	1.336
Mortality	4.25%
Daily Gain	69.2
EPEF	471.0



With combination best feed, Ross 308 AP chicks and service from Japfa, I got excellent performance. I will continue associate with Japfa for long term



### JUNE TOP CUSTOMER ACHIEVERS

Customer	Chicks Placed	Mean Age	BW	FCR	cFCR	Mor %	Day gain	EPEF
1	15970	33.0	2280.0	1.410	1.336	4.25%	69.2	471.0
2	2952	39.6	2640.0	1.520	1.378	4.07%	66.6	420.5
3	3163	33.0	1984.0	1.467	1.471	2.24%	60.1	400.6
4	4850	36.8	2030.0	1.490	1.483	6.25%	55.2	347.4

### JUNE TOP 10 FIELD PERFORMANCE

Flock	Chicks Placed	Mean Age	BW	FCR	cFCR	Mor %	Day gain	EPEF
Flock 1	15970	33.0	2280.0	1.410	1.336	4.25%	69.2	471.0
Flock 2	10586	36.7	2400.0	1.500	1.411	2.31%	65.3	425.4
Flock 3	2952	39.6	2640.0	1.520	1.378	4.07%	66.6	420.5
Flock 4	10595	35.6	2370.0	1.540	1.458	3.71%	66.7	416.8
Flock 5	3312	39.0	2540.0	1.510	1.390	3.41%	65.1	416.6
Flock 6	14487	36.1	2310.0	1.490	1.421	4.60%	64.0	409.7
Flock 7	11715	36.0	2240.0	1.470	1.417	3.87%	62.2	406.7
Flock 8	10281	36.4	2330.0	1.520	1.447	3.69%	64.0	405.7
Flock 9	18732	35.8	2270.0	1.500	1.440	4.47%	63.4	403.8
Flock 10	3163	33.0	1984.0	1.467	1.471	2.24%	60.1	400.6

**JUNE  
BEST OF  
THE BEST**

Best Weight for Age 2.9 Kg @ 45.5 days  
Best Daily Gain 69.9gm  
Best FCR 1.396  
Best Livability 98.49%



## PRESS RELEASE

# COVID-19 crisis: Srinivasa Farms, Hy-Line International & Aviagen donate Oxygen Concentrators to support the Poultry Farmers



Srinivasa Farms, Hy-Line International & Aviagen have partnered to provide oxygen concentrators to Poultry Farmers to help supplement the medical oxygen requirement of the Covid-19 patients. These oxygen

concentrators will be made available free of cost to patients thereby helping reduce the burden on our healthcare system.

This donation is a part of the ongoing efforts by Srinivasa Farms to support the communities that we serve, especially during the COVID-19

pandemic. Since last year, Srinivasa Farms has donated more than 10 lakhs eggs to the poor and needy.

"The entire Srinivasa family along with Hy-

Line & Aviagen is rallying together to support and stand by our Poultry Farmers in this moment of crisis by helping secure oxygen concentrators which are need of the hour," said Suresh Chitturi, MD, Srinivasa Farms Private Limited & Chairman, International Egg Commission.



## Free Lance Poultry Consultant

DR.MANOJ SHUKLA, a renowned poultry Veterinarian, with 20 years of enriched field experience, now started Free Lance Poultry Consultancy. In the past 20 years have contributed to the development of the hatcheries in various capacities of leading companies across India - Maharashtra, Gujarat, Madhya Pradesh, Chhattisgarh, Orissa, Bihar, West Bengal, Jharkhand, North-East, Uttar Pradesh and neighbouring country of Nepal.



### His areas of expertise include:

- Commercial Layer Management.
- Commercial Broiler Management
- Nutrition (Feed Formulations).
- Breeder Management.
- Sales & Marketing of Day-Old commercial Layer chicks, Broiler chicks & Poultry Feed.
- Sales & Marketing of Broiler Breeder.
- Integration.
- Training to Field staff.
- Field Trial of Drugs & Feed additives.
- Speaker in Technical Seminars.

He can be Contacted at:- **Dr. Manoj Shukla**

A-1, Gaytri Nagar, Phase-II, P.O. Shankar Nagar, Raipur, Chhattisgarh-492007

Mob.No : 09644233397, 07746013700, Res. 0771-4270230

Email : [drmanu69@gmail.com](mailto:drmanu69@gmail.com)

As a strategic partner, Poultry Line wishes Dr. Shukla every success in his new assignment



# Cargill Mycotoxin Survey

## Mycotoxin Score Card for Ground Nut Cake (May'20 – April'21)

**143**

Total Samples

**142**

Total Contaminated Samples

%Contaminated Samples



%Contaminated Samples Above Risk



Mycotoxin Analyzed	Samples	Contaminated Samples	Contaminated Samples Above Risk	Average Contaminated (ppb)	Max. Result (ppb)
Aflatoxin (total)	93	93	83	96.4	258.6
Fumonisin	17	17	4	728.8	2,560.0
Ochratoxin	17	17	13	35.0	70.4
T2 Toxin (total)	16	15	10	59.7	104.7
<b>Total</b>	<b>143</b>	<b>142</b>	<b>110</b>	<b>160.2</b>	<b>2,560.0</b>

## Risk Assessment by Species

Mycotoxin Analyzed	Broiler	Layer	Breeder
Aflatoxin (total)	High Risk	High Risk	High Risk
Fumonisin	Low Risk	Low Risk	Low Risk
Ochratoxin	Low Risk	Low Risk	Low Risk
T2 Toxin (total)	Low Risk	Low Risk	Low Risk

Minimum Risk Low Risk Medium Risk High Risk

### Mycotoxin contamination pattern of Ground Nut Cake (May'20-April'21)

- Aflatoxin was majorly found in Ground Nut Cake with average contamination of 96ppb.
- Maximum aflatoxin load was 2560ppb in GNC analysed from May'20 – April'21.
- Fumonisin was also present in considerable amount with average of 728ppb.

## Percentage of samples above risk by species



Broiler



Layer



Breeder



Contact : Dr. Nidhi Madnawat, email : nidhi\_madnawat@cargill.com

www.provimi.in

Cargill Premix & Nutrition

Provimi Animal Nutrition India Pvt. Ltd  
IS-40, KHB Industrial Area, Yelahanka New Town,  
Bengaluru - 560 064, Karnataka, India.  
T +91-80-28460060 E info@cargill.com

© 2019 Cargill,  
Incorporated.

**Cargill**® Helping  
the world  
thrive

# Commercial Poultry Management During Rainy Season

by Dr. Akshay Mote, Dr. Sunil Nadgauda & Dr. Sandeep Gavali

The Indian poultry sector is one of the most vibrant, fastest growing, agro-based, techno-commercial industry. There are several constraints affecting growth of the poultry industry, among which temperature associated environmental challenges (hot and cold climate, heavy rainfall) imposes severe stress on birds and leads to reduced performance. Thermal discomfort may result in improper expression of genetic potential in birds (Kataria et al., 2008) and production performance of broiler chicken are greatly affected due to adverse environmental conditions. At present, climatic variation is a key threat for poultry industry, especially for marginal poultry farmers in open-house systems (Osti et al., 2017).

In India during rainy season there is increase in the relative humidity and a reduction in temperature; rainfall affects both the quality and quantity of feeding, while wind speed has an impact on the outbreak of diseases.

With the arrival of monsoon, farmer needs to give a little bit more attention towards his crops along with the livestock and poultry. Monsoon comes as a challenging season for poultry farmers which could be very tormenting. As rainy and cold season brings changes in temperature and weather conditions, it leaves a deep impact on the poultry farm. Hence, as a poultry farmer, it is very important to learn how to operate poultry farm during rainy season.

Poultry birds and poultry production are generally affected by seasonal climatic or weather changes. For instance, in the wet or cold season bird eat more feed, drink less water and huddle together to generate heat and keep them warm. On the other



hand, chickens and other livestock birds consume less feed and drink more water in the hot season or weather in order to cool their body. These changes affect the production of birds, especially laying birds, as the egg production is reduced in extremely cold or hot weather. This reduction in egg production occurs because when there are extreme cold or hot conditions, these birds are stressed, and their ability to withstand diseases or immune system is seriously affected.

## Managemental Practices during Rainy Season

- It is always better to repair the poultry sheds before the arrival of the rainy season and clear the drainage ditch around the shed.
- When it rains, close the doors and windows or let the curtains close to prevent rain from entering the shed thereby helps to prevent the chickens from getting cold or other problems.
- Poultry farmer should reserve enough dry litter material. Regular raking of the litter material helps to keep it dry. The wet agglomerated litter material should be removed out of the shed to reduce the ammonia concentration in the house.



- Prevent the feed ingredients from getting wet, and the amount of feed should not be too much. The compound feed in the house should be placed on the platform above the ground to prevent the feed from regaining moisture and mildew.
- In rainy season, the humidity in the poultry shed is increased and also there are more chances that litter get wet, feed is mildewed, and sometimes water get contaminated with pathogens which may lead to coccidiosis, E. coli outbreak, and elevated ammonia concentration.
- Birds usually increase their level of feed intake to generate heat and stay warm during rainy season. However, for a farmer increasing the level of feed raises the cost of production besides wastage of nutrients that are not needed for heat generation. To reduce costs and avoid wastage, energy rich sources like oil should be added to the feed or level of other nutrients may be reduced keeping the energy at same level.
- Provide warm water periodically during rainy season to encourage feed consumption and help them keep warm without using up energy.
- Poultry shed should be designed in such a way that it provides all the comfort required by birds during rainy season while considering ventilation as well.
- In regions where it rains heavily, the floor should be raised with a generous roof overhang, particularly over the entrance.
- The raised floor can be a solid platform to prevent floods. Orientation of a building with respect to wind and sun consequently influence temperature and light on different external surfaces. With better management, your flock will remain healthy and productive throughout the rainy season.
- During rainy season birds need to be warm, especially chicks that haven't been able to control their body temperature.
- In rainy season, the water can cause trouble in bird's health as the water from the rain might bring many worms and parasites. So, during rainy season it is important to give de-wormers to avoid infection from intestinal worms.
- Rainy season leads to the immune suppression, and birds can get easily infected by bacteria and viruses.
- Mosquitoes and other blood-sucking insects that multiply well during this season thus can increase the possibility of transmitting viruses to chicken.
- Instead of waiting your birds to get sick and treat them, you can avoid the disease outbreak by vaccinating before monsoon.



# NATIONAL EGG CO-ORDINATION COMMITTEE

DAILY / MONTHLY EGG PRICES DECLARED BY NECC AND PREVAILING PRICES AT VARIOUS PRODUCTION CENTRES (PC) AND CONSUMPTION CENTERS (CC) JULY 2021

Name Of Zone / Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average	
NECC Prices																																	
Ahmedabad	556	535	525	525	527	530	532	532	532	525	525	525	525	528	531	534	537	540	542	544	544	544	544	544	520	510	500	490	490	470	460	460	522
Ajmer	492	492	490	490	500	502	497	480	480	480	480	490	490	491	491	492	492	480	482	482	482	475	475	468	451	440	430	415	-	415	415	474.63	
Barwala	483	480	475	477	487	489	480	472	472	472	474	477	480	484	488	490	490	490	490	490	490	490	490	472	465	450	440	440	410	410	410	468.61	
Bengaluru (CC)	525	510	500	500	500	500	500	500	500	500	490	490	490	495	500	510	515	520	520	525	525	525	525	525	525	525	510	500	490	475	475	505.32	
Brahmapur (OD)	493	493	490	490	492	499	502	502	502	487	487	490	494	497	502	505	508	513	515	515	515	509	509	485	485	473	466	451	436	436	489.58		
Chennai (CC)	520	520	520	505	505	505	505	505	505	505	505	505	505	505	505	520	520	530	530	540	540	540	540	540	540	540	520	520	500	500	500	518.06	
Chittoor	513	513	513	498	498	498	498	498	498	498	498	498	498	498	498	513	513	523	523	533	533	533	533	533	533	533	513	513	513	493	493	511.06	
Delhi (CC)	515	505	500	495	500	505	508	508	495	495	495	498	505	507	510	510	510	510	510	510	510	510	492	485	470	460	445	425	425	425	425	491.87	
E.Godavari	480	475	458	468	471	476	479	479	479	468	468	470	472	474	477	480	483	486	489	489	489	489	489	470	470	460	454	440	425	425	425	469.9	
Hyderabad	485	470	465	468	471	474	474	474	465	465	465	465	468	473	478	483	488	493	496	496	496	496	485	475	465	455	435	420	420	420	468.97		
Ludhiana	491	486	481	481	481	488	488	479	472	472	472	475	477	481	486	488	488	488	488	488	488	478	474	474	471	456	450	440	425	411	411	471.87	
Mumbai (CC)	560	545	530	530	530	530	535	535	535	525	525	525	525	528	533	538	543	548	553	555	555	555	555	545	535	525	515	-	495	480	480	532.27	
Muzaffarpur (CC)	548	543	533	533	543	543	543	533	524	524	529	538	538	538	538	538	543	543	543	538	538	543	543	533	524	505	495	495	476	467	462	526.9	
Mysuru	520	510	500	500	500	500	500	500	500	500	490	490	490	495	500	510	515	520	520	525	525	525	525	525	525	525	510	500	490	475	475	505.16	
Nagpur	540	520	520	500	510	520	520	520	520	520	500	500	500	507	512	512	512	517	517	521	521	521	521	510	500	500	485	-	460	450	450	506.87	
Namakkal	505	505	490	490	490	490	490	490	490	480	480	480	480	480	480	495	505	505	515	515	515	515	515	515	515	500	500	500	480	480	460	495.65	
Patna	543	543	524	524	538	538	533	529	524	519	529	533	533	533	543	543	538	543	543	538	533	533	543	533	524	509	500	495	476	471	462	524.84	
Pune	553	535	520	515	518	521	525	525	525	515	515	517	517	519	524	529	534	539	544	544	544	544	544	544	535	525	515	505	485	470	470	521.81	
Ranchi (CC)	552	552	538	538	548	548	548	538	533	533	533	543	543	543	548	548	548	548	543	543	543	548	548	548	543	538	524	510	505	490	490	534.94	
Vijayawada	490	485	478	478	481	486	489	489	489	478	478	480	482	484	487	490	493	496	499	499	499	499	499	480	470	464	450	435	435	435	479.9		
Vizag	480	475	475	475	475	485	490	490	490	475	475	477	479	481	484	487	490	493	496	496	496	496	496	470	460	460	440	440	440	440	476.65		
W.Godavari	480	475	458	468	471	476	479	479	479	468	468	470	472	474	477	480	483	486	489	489	489	489	489	470	460	454	440	425	425	425	469.9		
Warangal	487	472	467	470	473	476	476	476	467	467	467	467	467	470	475	480	485	490	495	498	498	498	498	487	477	467	457	437	422	422	422	470.97	
Prevailing Prices																																	
Allahabad (CC)	543	538	529	519	524	519	514	505	505	505	505	514	514	519	519	519	519	519	533	533	533	533	529	524	514	500	495	486	476	471	467	513.65	
Bhopal	535	525	515	515	520	520	520	520	520	510	505	510	510	510	510	510	510	510	510	510	510	510	510	510	490	490	465	455	445	445	502.9		
Hospet	485	470	460	460	460	460	460	460	460	460	450	450	450	455	460	470	475	480	480	485	485	485	485	485	485	470	460	460	450	435	435	465.32	
Indore (CC)	525	525	525	515	515	525	525	515	500	500	500	510	500	510	505	505	510	500	505	505	-	500	500	490	490	475	470	450	-	440	440	499.14	
Jabalpur	522	510	500	500	500	507	509	509	497	490	490	490	495	503	508	511	511	511	511	511	511	511	511	503	495	485	475	475	455	435	435	496	
Kanpur (CC)	529	514	514	505	514	514	514	505	505	505	505	505	505	514	514	514	514	514	514	514	514	514	514	500	490	467	467	467	467	467	467	502.13	
Kolkata (WB)	535	535	530	530	545	550	550	550	550	530	530	532	534	536	540	545	550	550	550	550	550	550	540	535	525	520	500	490	490	480	475	531.52	
Luknow (CC)	553	553	553	553	553	553	553	553	553	543	543	543	543	543	543	543	543	543	543	546	546	546	546	546	533	520	520	510	500	500	490	538.61	
Raipur	540	525	525	515	515	520	520	520	520	520	505	505	507	510	513	515	518	518	518	518	518	518	518	510	500	485	475	475	445	435	425	504.87	
Surat	566	545	535	530	532	535	537	537	537	530	530	530	530	533	536	539	542	545	547	549	549	549	549	549	525	515	500	500	480	470	470	528.94	
Varanasi (CC)	550	550	540	533	543	543	537	527	533	533	533	540	540	547	550	550	550	550	550	550	550	550	550	550	540	533	523	510	500	490	490	533.94	



# Nobilis® IB Multi Range

For solid & durable Infectious Bronchitis protection.

**A whole world of protection**



## The most comprehensive vaccine range for Infectious Bronchitis control

### Live IB Vaccines

*Massachusetts Serotype Strains*



#### Nobilis® IB Ma5

Live freeze-dried vaccine containing Infectious Bronchitis virus, strain Ma5, serotype Massachusetts.



#### Nobilis® IB Ma5 + Clone 30

Live freeze-dried vaccine containing Infectious Bronchitis virus, strain Ma5, serotype Massachusetts and Newcastle Disease virus, strain Clone 30.



### Inactivated IB Vaccines

*Nobilis® IB + ND (Massachusetts / killed Clone 30)*



Combined inactivated oil emulsion vaccine containing Infectious Bronchitis virus, strains M41, serotype Massachusetts and Newcastle Disease virus, strain Clone 30.



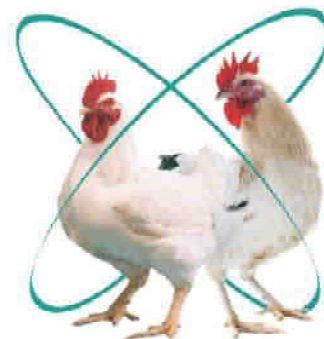
Nobilis® IB multi + ND  
Combined inactivated oil emulsion vaccine containing Infectious Bronchitis virus, strains M41, serotype Massachusetts & D207/D274 and Newcastle Disease virus, strain Clone 30.



Your **guarantee** for  
**continuous  
production**

## Nobilis® Corvac-4

Broadest protection ever... Tetravalent vaccine



Protectotype  
ONLY FROM MSD ANIMAL HEALTH

MSD  
Animal Health

112-08-2021





# Infectious Coryza Vaccine Inactivated

*The perfect blend of* **Antigen** **Adjuvant**



- Every nasal discharge is not infectious Coryza
- Monitoring is critical

EFFECTIVELY REDEFINED FOR CURRENT INDIGENOUS CHALLENGES

**VENTRI BIOLOGICALS**  
(Vaccine Division of VHPL)

Venkateshwara House, S. No. 114/A/2, Pune-Sinhgad Road, Pune - 411 030. Tel. : +91-20-24251803 Fax : (020) 24251077, 24251060



Email: [ventri.biologicals@venkys.com](mailto:ventri.biologicals@venkys.com)

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

