# Poultry Fortune

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March 2020

Inside...

Editorial: Stop hatredness, help people to live in peace!!



Chicken and Egg Mela attracts huge crowds in Hyderabad; Ministers, Celebrities dispel fears over Coronavirus



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Cargill World Mycotoxin Survey

COVID-19 scare hits Poultry business

Chhattisgarh's poultry industry feels Coronavirus pinch

"The World
Mycotoxin Forum"
to Asia: Key Learnings

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Safe anti bacterial solutions for poultry can radically reduce need of Antibiotics



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- Editor



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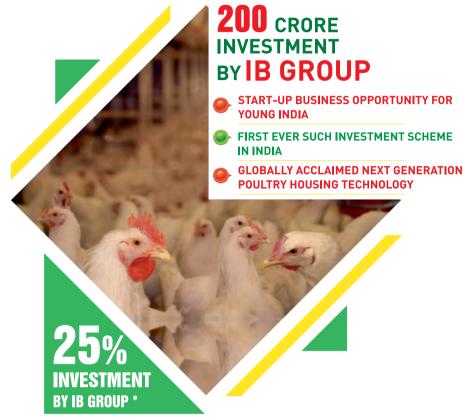
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# Stop hatredness, help people to live in peace!!



This time, I want to share with you about different things that are disturbing the nation and the people. The violence and the human deaths occured in Delhi in the last week of February was a

very sad thing.

BJP and its leaders have not done any good to India and its society, except creating communal differences and disturbances among the people of this country on the name of caste, religion and region to get benefitted for votes. There are so many political parties in India, and no party never tried to create differences among Hindus, Muslims and other communities. It is the BJP, whose agenda is only to talk against a community - Muslims, instigate Hindus against Muslims and others with hate speeches only to get Hindu votes and they succeeded to some extent, because the government, the executive of the Constitution has not taken action against individuals who made hate speeches. What have they learnt from late A. B. Vajpayee, a great human being, past prime minister and a leader of BIP.

A very small section of people are dominating BJP with hate ideas and thoughts against certain religions only to gain power to rule the country, but not to lead the country in peace and progress. Like others, Muslims and others also love India, live for India and for its progress. Let people lead their life with dignity and honour.

Supreme Court on February 27 rightly pointed out Delhi police on not filing FIR against three MLAs in Delhi as per law for their hate speeches which killed and caused damage to the lives of dozens and hundreds of people in Delhi.

Our Prime Minister and Home Minister should realize atleast now, stop this hatredness against any community, bring everybody – Hindus, Muslims, Christians, Sikhs and all together and work for peace and progress for the present and future generations in India and globally.

I want to ask a question to Prime Minister Mr Narendra Modi, where is the need for him to suddenly bring Citizenship Amendment Act (CAA) on 11 December 2019 and trying to implement it. Is it to divert the attention of people from the falling economy of the nation, unemployment problem etc? Many intellactuals and senior journalists guessed that this wrong decision of act of Modi and Shah would lead to violence among the people of various communities. It happened.

What have we achieved even after 70 years of Independence? We still have bad roads without proper drainage facility, clean drinking water, electricity, street lights, sanitation, education, healthcare etc.

Commodities prices are going up day by day and there is break in Law and Order every now and then. If he is honest enough to serve the nation and its people, he should achieve these things in coordination with all the states. One should not go for temporary gains with communal aspects, but aim at remaining in the hearts of all the people of the nation through solving these issues on priority.

Whatever achievement is made in different sectors in the country is mostly by private sector and its stakeholders. For example, today, Poultry sector is facing crisis situation, but the government is thinking of allowing import of American Chicken Legs to maintain their friendship with US and its leader – and damaging poultry farming community in India and its Rs 100,000 crore sector. Similarly, it will affect Maize and Soya bean growing farmers in the country.

In Europe and USA, people who come into politics take it as an opportunity to serve the people and their nation, whereas in India most of the people come into politics to make money through corrupt practices and to continue in power politics by dividing people on the name of religion and region.

Our country has wonderful resources for development, but it is unfortunate that many of our politicians destroying it with their corrupt and communal / religious politics as well as with hate speeches. These politicians have no value and respect to the constitution and to the democracy.

Politicians and people of my nation should always think, speak and do doing good for themselves and for all in the society, and remain in the hearts of the people for doing good deeds.

M.A.Nazeer Editor & Publisher Poultry Fortune



## Our Mission

**Poultry Fortune** will strive to be the reliable source of information to poultry industry in India.

**PF** will give its opinion and suggest the industry what is needed in the interest of the stakeholders of the industry.

**PF** will strive to be The Forum to the Stakeholders of the industry for development and self-regulation.

**PF** will recognize the efforts and contribution of individuals, institutions and organizations for the development of poultry industry in the country through annual Awards presentation.

**PF** will strive to maintain quality and standards at all times.

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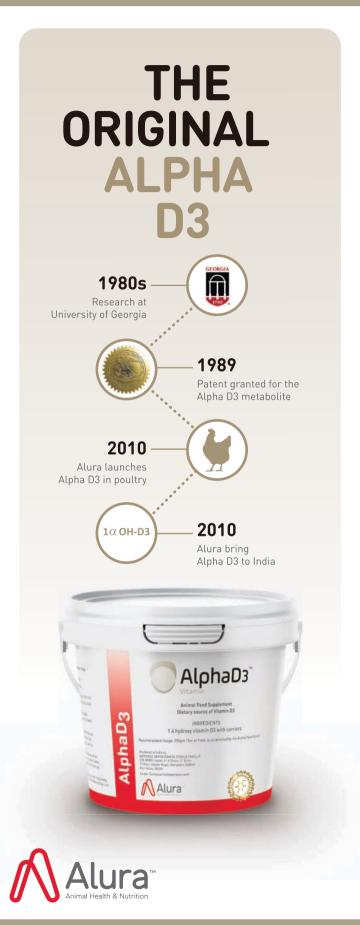
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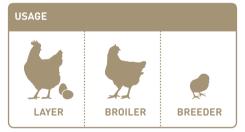


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# Nourishing Tradition with Modern Nutrition-Alltech hosts its 2<sup>nd</sup> Poultry Nutrition Summit in Goa

Over the past 25 years, poultry nutrition has focused on production efficiency. Today, it strives to maximise biological and economic performance. In future, poultry nutrition seems to tend towards production efficiency, biosecurity and food safety, environmental stewardship, and bird's welfare.

To get a handle on modern nutrition, after its first Poultry Nutrition Summit in 2017, Alltech counts date to conduct its 2ndNutrition summit in March27-29th,2020, location set to be Goa. The 3 day conference explores the top innovation and technology trends, emerging business issues and possible solutions, connecting the business and science of poultry nutrition.

Poultry Industry, undergoing a disturbed market situation due to high price and supply shortage of raw materials had resulted in absorbance of loss from last fewer months. Tackling the situation lies in choosing the right alternative! Alltech Poultry Nutrition Summit is the one platform to get assisted on maintaining the economics without hampering the performance with a right nutrition.

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Dr Steve Leeson, an eminent personality of poultry industry, who published 340 papers in referred journals, over 1000 presentations at scientific and industry meetings world-wide and 8 books publication on poultry nutrition and management, will be addressing the audience as keynote speaker.

Steve Elliot, who is currently serving Alltech as a Global Director of Mineral Division who has been involved in the feed industry for more than 25 years, presents over the gathering, the health benefits of organic minerals.

Effective mycotoxin management is about seeing the whole challenge, from the farm to feed mill and from risk assessment to feed management. Dr Nick Adams, Global Director for Alltech Mycotoxin Management marks his crucial presence to create awareness on mycotoxin management.

The summit is a platform to bring together nutrition experts and feed millers from all around South Asia to educate and build a valuable skill set about poultry industry.

"Whether your goal is to improve efficiency & profitability or to learn more about the latest nutritional & feed milling technologies to implement in your business, the Alltech South Asia Poultry Nutrition Summit is the place to be", says Dr Aman Sayed, Managing Director- India and Regional Director-South Asia stressing the importance and benefit of attending the summit.

# Alltech launches relief effort for Australian farmers

The bushfires in Australia have destroyed an estimated 10 million hectares, claiming lives and killing wildlife and livestock. The Australia Farming Relief Fund will help provide goods and services directly to affected farmers, coordinated on the ground by Alltech family companies Alltech Lienert Australia and KEENAN Australia. Alltech is matching donations dollar-for-dollar.

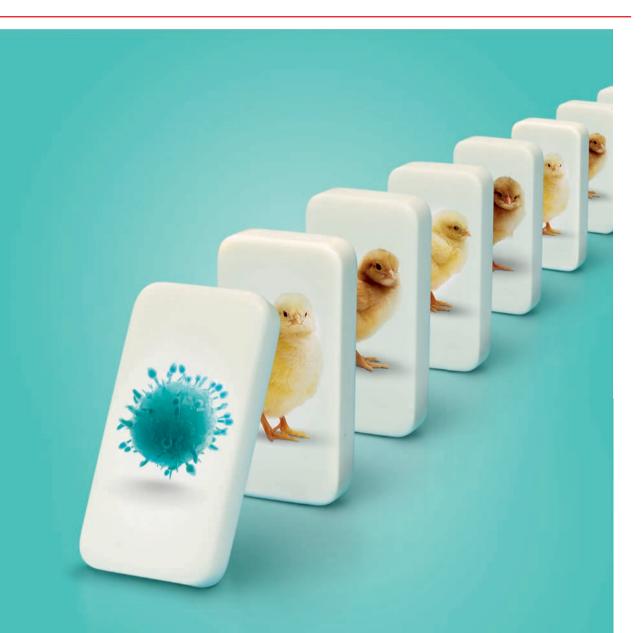


# Australia Farming Relief Fund will support producers impacted by bushfires

[NICHOLASVILLE, Ky.] – Even as rain begins to fall in some parts of Australia, wildfires continue to devastate large portions of the country. The fires have already destroyed an estimated 10 million hectares, claiming 25 lives and killing wildlife and livestock. Alltech, a leading animal nutrition company,

is lending its support to the country's agriculture industry, launching a global fund raising effort for farmers and pledging to match donations dollar-fordollar. The Australia Farming Relief Fund will provide goods and services directly to producers and will be coordinated on the ground by Alltech family companies

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Alltech Lienert Australia and KEENAN Australia.

"The Australia Farming Relief Fund represents a coordinated effort among our Alltech family, suppliers, customers and the global agriculture industry to support the producers who feed our families and are the core of our rural communities," said Mark Peebles, managing director of Alltech Lienert, which is located in Roseworthy, Australia. "The bushfires have been devastating, but Australians are resilient, and we are committed to rallying around our farmers as they recover from this crisis."

As farmers assess the damage, the loss of livestock is expected to exceed 100,000 animals. Producers, who were already contending with a three-year drought, are struggling to secure supplies and feed.

Alltech Lienert and KEENAN

Australia will use their resources to distribute supplies either donated locally or purchased using donations from the Australia Farming Relief Fund. Such supplies will include hay, finished feed, feed supplements, silage, water troughs, fencing and non-perishable items. The companies will deploy their trucks and drivers to deliver supplies to producers in Victoria, South Australia, New South Wales (NSW) and Queensland. Team members will also volunteer their time to work alongside farmers, rebuilding fences, repairing sheds and providing any on-farm support they need.

The effort will initially focus on dairies, sheep and beef farms, and apiaries. Alltech is also exploring partnerships that will offer longer-term mental health support for farmers grappling with trauma as a result of the fires.



The poultry industry has been organising awareness campaigns and chicken and egg melas across the country to remove misconceptions regarding the deadly virus.

A practising doctor, Srinivas Raju, who has a breeder farm, said that COVID-19 would affect only mammals and not birds. "Linking chicken consumption with COVID-19 is a far-fetched and irrational notion. Moreover, the Indian style of cooking process at hot temperatures will destroy any bacteria or virus. Eggs and chicken are good sources of protein and please do eat them," he advised.

General manager of Venkateswara Hatcheries Group K.G. Anand said that the Indian government and WHO stated that chicken and eggs were safe to be eaten and COVID-19 would not spread by eating them.

"Now, consumption is slowly improving though chicken is still under-priced at ₹50 a kg. We hope consumption and prices will be back to normal in three to four weeks," he said. Poultry farmers suffered losses whenever a scare

clear misconceptions. It happened with the bird flu epidemic, later Chikungunya fever, though it has nothing to do with chicken.

### Chicken and egg mela

This time too, the Telangana Poultry Breeders' Association, Telangana Poultry Federation, National Egg Coordination Committee and All India Poultry Development and Service Pvt. Ltd., with more than 25,000 members, mostly small and marginal farmers, got together to organise a chicken and egg mela at People's Plaza on Necklace Road here on Friday to create awareness on consumption of eggs and chicken. The mela was held on 28 February 2020 from 4 p.m. to 9 p.m.

### Ministers to take part

"We are serving free chicken and egg dishes to general public who come to the mela along with entertainment programmes. Several ministers, including Industries Minister K.T. Rama Rao, Health Minister Eatala Rajender, Animal Husbandry Minister Talasani Srinivas Yadav, Agriculture Minister Niranjan Reddy, physicians, and celebrities, among others, would attend the mela, and try the egg and chicken dishes to boost the confidence of general public," he said.

# **COVID-19 scare hits Poultry business**

### HYDERABAD: 'Chicken consumption has come down by about 30% leaving farmers worried'

The scare of COVID-19 and spread of rumours on social media linking chicken to the deadly virus has taken a huge toll on the unsuspecting poultry industry and farmers.

#### Rumour mills

Many people across the country, apparently scared of the rumours doing the rounds on social media about the virus that emanated in China and fast spreading to other parts of the world, ticked off eggs and chicken from the menu at most houses.

"Chicken consumption has come down by about 30%, leaving the poultry industry and farmers worried," said Broiler Integration **Coordination Committee** member Ram Reddy. With fall in sales, chicken prices too declined steeply from ₹80 a kg live chicken at farm to ₹40 a kg. The production cost itself is about ₹75 a kg, bulk of it spent on feed for birds.

was created following an outbreak of an epidemic.

The industry would mount a campaign to

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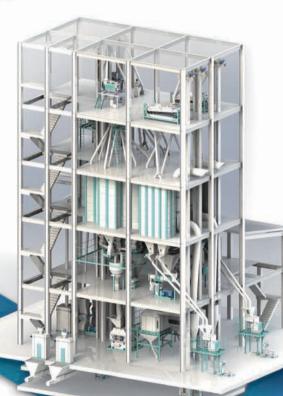












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# Interface Pharmaceuticals receive award from Assocham

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Pratap Chandra Sarangi, Hon'ble Minister of State, Ministry of MSME, Govt. of India, handed over the Trophy and Certificate to S.K. Malhotra, Chairman & Managing Director of Interface Pharmaceuticals Pvt Ltd.

# Seminar held on summer management in poultry in Warangal



Dr Janakiraman, Dr G Sivaramakrishna, P Krishna Murthy addressed.
Prominent farmers M Dharma Rao, E Pradip Kumar Rao, Ex MLA,
T. Subramaniam and other TPF & NECC members were present.

# Cargill World Mycotoxin Survey

Mycotoxins are secondary metabolites of low molecular weight produced by a wide range of fungi. There are over 300 species of fungi that produce mycotoxins. Aflatoxins (AF), zearalenone (ZEN), ochratoxin A (OTA), fumonisin (FUM), trichothecenes such as deoxynivalenol (DON), and T-2 toxin are some of the mycotoxins that can significantly impact the health and productivity of livestock and poultry species. These toxins are found as natural contaminants in many feed ingredients of plant origin like cereals, seeds, fodder etc. Hence mycotoxins seem to be the most relevant with respect to feed contamination and have a significant economic impact in the animal industry. Fungi grow

wherever temperatures and humidity are optimal, and unfortunately weather conditions at harvest time, and/or harvesting practices (such as leaving cut grains in the field before recovery) often promote contamination of cereals, grains and legumes with mycotoxins. There is a great deal of variability in mycotoxin contamination from place to place, and from year to year, depending on local weather and humidity at the time of harvest. With regional weather becoming more unstable and extreme due to climate change, mycotoxins diversity and contamination levels are only expected to rise in the future.

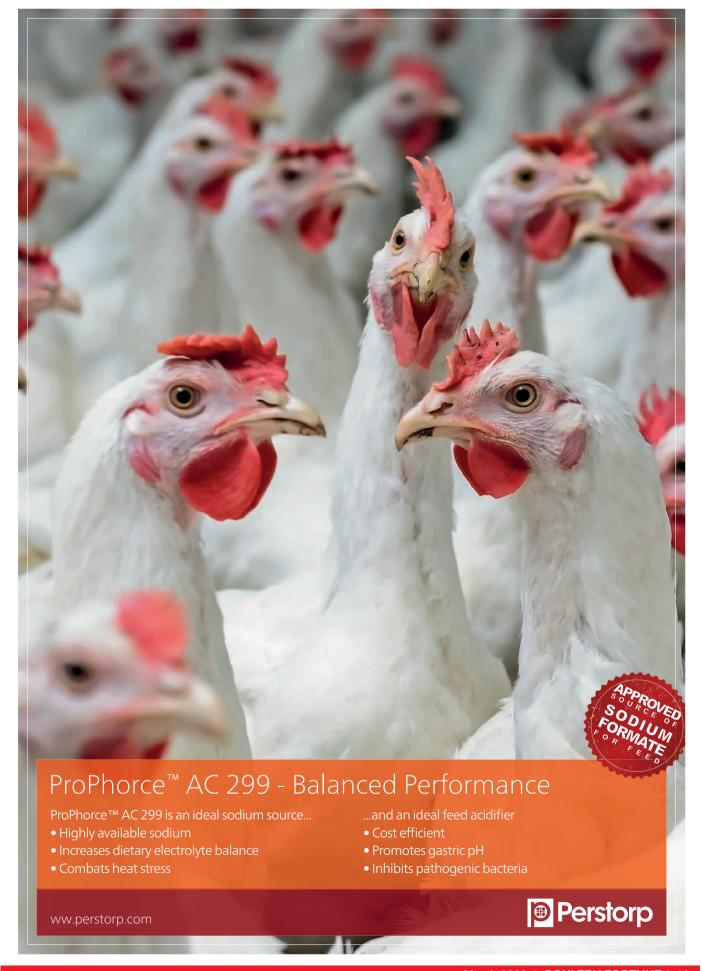
Agricultural commodities are now originating from all corners of the globe & spreading threat of mycotoxins through animal feeds produced worldwide. Minimizing the risk of mycotoxins from the field where crops are grown to animal feed and eventually food is a complex process that starts with prevention at the farm and requires a great deal of effort at every step in the food production chain (January 2007). Consequently, it is assumed that it is not possible to completely eliminate more than 300 known mycotoxins from contaminated agricultural commodities. Customers have to take precautionary measures to eliminate mycotoxin risk.

Through deep local relationships backed by broad global expertise, Cargill helps customers make their most important animal nutrition and wellbeing decisions. Cargill is a total solutions provider, providing species-specific products and services that serve an animal's holistic needs through their entire lifecycle.

Cargill World Mycotoxin
Survey brings mycotoxin
contamination pattern
data to its customers, in
order to help them better
manage their mycotoxin
risk, and thus, improve their
feed and food safety and
keep their control plan cost
under control. As mycotoxin
contamination in raw
materials can change over
time, Cargill made a priority
of always displaying fresh
data.

Cargill World Mycotoxin Survey, 2019 consists mycotoxin results of 2,82,277 commodity samples sourced from more than 55 countries. 170 ingredients covering entire gamut of ingredients used in poultry, cattle & swine have been chosen for analysis. All ingredients have been analyzed for 6 mycotoxins predominantly, which pose serious threat on poultry, cattle & swine species. All analysis has been done locally & compiled centrally in form of World Mycotoxin Survey.

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March 2020 • **POULTRY FORTUNE** • 19

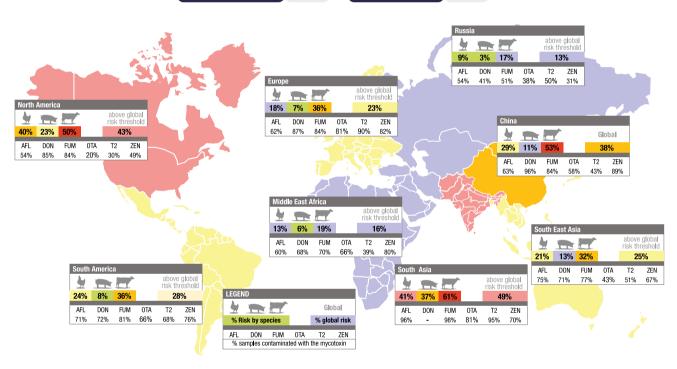


# **CARGILL WORLD MYCOTOXIN SURVEY**

January - December 2019

PERIOD Jan - Dec 2019 ANALYSIS NUMBER

INGREDIENTS 170+ COUNTRIES 55+



### **CARGILL RECOMMENDED RISK THRESHOLDS**

Risk thresholds (ppb)	AFLA	FUM	ОТА	T-2	DON	ZEN
Global	10	1000	25	50	200	75
Poultry	20	1000	50	50	300	100
Swine	20	3000	50	150	750	500
Ruminant	1	3000	150	100	250	100

### **RISK LEVELS**

282 277

Mycotoxin toxicity risks are expressed in % of samples above the defined threshold. Risk qualifications are described according to the scale below:

01	Extreme risk	50-100 % of samples above risk threshold
Ŏ	Severe risk	$40-50\ \%$ of samples above risk threshold
Ŏ	Very high risk	30-40~% of samples above risk threshold
Ŏ	High risk	$20-30\ \%$ of samples above risk threshold
O	Moderate risk	10-20~% of samples above risk threshold
lŎ	Low risk	00-10~% of samples above risk threshold

#### DISCLAIMER

Sampling and in a minor extent analytic, induce variability in Mycotoxin level data. Also mycotoxin toxicity depends on farm management and environment. This information is indicative and may not reflect 100% the real situation. Cargill cannot accept responsibility for any issues resulting from the use of such information.

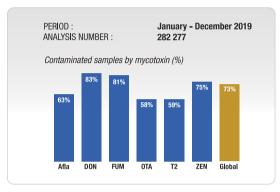
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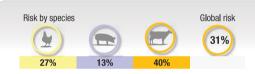
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# **SPROMOTE®**



# World

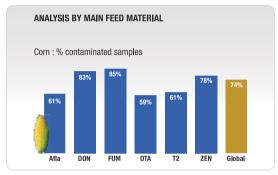


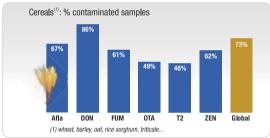


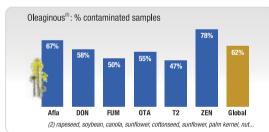
#### **FOCUS**

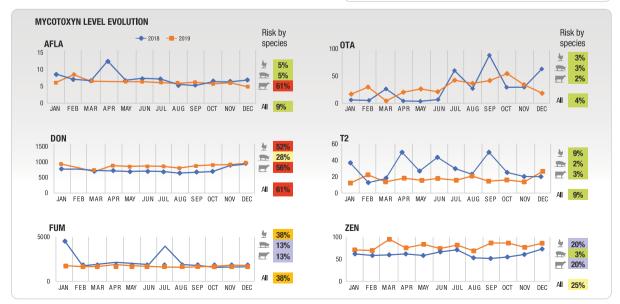
- High DON (83%), FUM (81%) and ZEN (75%) contamination rate
- Extreme Afla risk for ruminant species
- Extreme DON risk for ruminant and poultry species.
- High risk for swine species











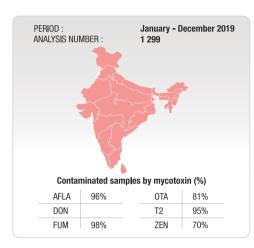
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# India



Risk by species			Global risl
			45/0
41%	37%	61%	

- High Afla (96%), FUM (98%), OTA (81%), T2 (95%) and ZEN (70%) contamination rate
- Extreme Alfa risk for all species
- Very higher FUM risk for poultry species, high FUM risk for swine and ruminant species

ΔΝΔΙ ΥSIS	RY	MΔIN	FFFD	MATERIAL

48	CORN	Alfa	DON	FUM	OTA	T2	ZEN
J	Number contaminated samples	228		50	39	47	1
	Number samples	242		50	51	59	1
	% contaminated samples	94%		100%	76%	94%	100%
	Average of contaminated (ppb)	46		4 300	19	25	4
	Maximum (ppb)	300		13 480	134	158	4

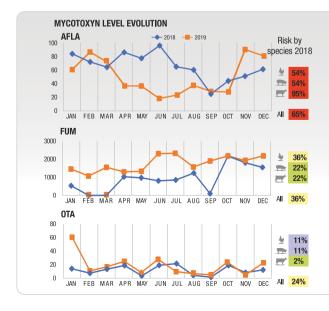
CEREALS <sup>(1)</sup>	Alfa	DON	FUM	OTA	T2	ZEN
Number contaminated samples	356		26	28	21	11
Number samples	366		27	29	23	15
% contaminated samples	97%		96%	97%	91%	73%
Average of contaminated (ppb)	74		1 213	15	41	22
Maximum (ppb)	300		5 330	140	140	64

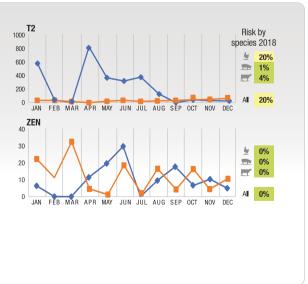
(1) wheat, barley, oat, rice sorghum, triticale...

24							
7/	OLEAGINOUS <sup>(2)</sup>	Alfa	DON	FUM	OTA	T2	ZEN
14	Number contaminated samples	120		55	40	56	2
	Number samples	125		58	57	56	4
	% contaminated samples	96%		95%	70%	100%	50%
	Average of contaminated (ppb)	19		290	10	37	30
	Maximum (ppb)	120		1 130	50	138	43

(2) rapeseed, soybean, canola, sunflower, cottonseed, sunflower, palm kernel, nut...

♠ C Extreme risk	50 - 100 %	↑ O High risk	20 - 30 %
Severe risk	40 - 50 %	Moderate risk	10 – 20 %
Very high risk	30 - 40 %	O Low risk	00 – 10 %





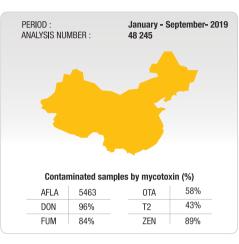
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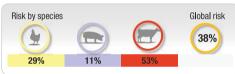
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# **PROMOTE**®



# China





#### **FOCUS**

- High DON (96%), FUM (84%) and ZEN (89%) contamination rate
- Extreme AFLA risk for ruminant species
   Extreme PON risk for ruminant species
- Extreme DON risk for ruminant species and poultry species high DON risk for swine
- Severe FUM risk for poultry species

- 00000	TOWITION TO P	outry species				
<b>†</b> O	Extreme risk	50 – 100 %	<b>↑</b> Hiç	gh risk	20 - 30 %	6
lŎ	Severe risk	40 – 50 %	O Mo	oderate risk	10 - 20 %	6
	17 1.2.1. 2.1				00 400	,

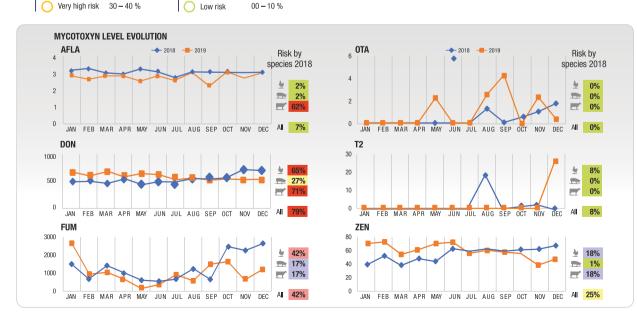
Al	NALYSIS BY MAIN FEED MATERIAL						
	CORN	Alfa	DON	FUM	OTA	T2	ZEN
	Number contaminated samples	7 403	11 764	181	7	1	8 641
	Number samples	11 803	12 142	210	13	15	9 641
	% contaminated samples	63%	97%	86%	54%	7%	90%
	Average of contaminated (ppb)	4	668	1 599	6	3	73
	Maximum (ppb)	400	7 213	5 600	11	3	9 802

	44						
6	CEREALS <sup>(1)</sup>	Alfa	DON	FUM	OTA	T2	ZEN
-	Number contaminated samples	2 602	4 263	1	12	0	2 447
	Number samples	3 937	4 391	7	15	14	2 877
	% contaminated samples	66%	97%	14%	80%	0%	85%
Γ	Average of contaminated (ppb)	7	590	28	3	0	55
	Maximum (ppb)	150	4 600	28	14	0	8 801

(1) wheat, barley, oat, rice sorghum, triticale...

4							
7/	OLEAGINOUS <sup>(2)</sup>	Alfa	DON	FUM	OTA	T2	ZEN
1	Number contaminated samples	710	469	2	2	0	768
	Number samples	1 280	673	7	3	7	842
	% contaminated samples	55%	70%	29%	67%	0%	91%
	Average of contaminated (ppb)	9	269	610	3	0	79
	Maximum (ppb)	73	1 300	1 190	4	0	4 603

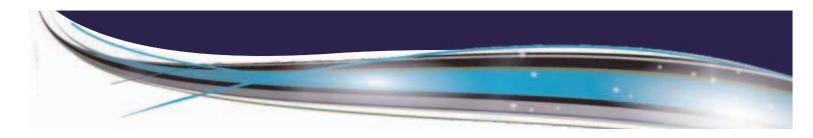
 $(2)\ rapeseed,\ soybean,\ canola,\ sunflower,\ cottonseed,\ sunflower,\ palm\ kernel,\ nut...$ 



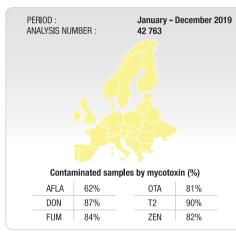
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**ARGILL WORLD MYCOTOXIN SURVEY Jan - Dec 2019** 

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# **Europe**



Risk by species			Global risk
			40%
18%	7%	36%	

#### **FOCUS**

- High DON (87%), FUM (84%), OTA (81%), T2 (90%) and ZEN (82%) contamination rate
- Severe DON risk for ruminant, very high risk for poultry species
- Extreme Alfa risk for ruminant species

4 207	4.000	
. 201	4 932	2 001
7 018	6 131	2 370
60%	80%	84%
3	440	796
450	75 830	50 000
	60%	60% 80% 3 440

1171						
CEREALS <sup>(1)</sup>	Alfa	DON	FUM	OTA	T2	ZEN
Number contaminated samples	795	7 051	251	342	276	1 028
Number samples	1 025	7 527	288	380	288	1 255
% contaminated samples	78%	94%	87%	90%	96%	82%
Average of contaminated (ppb)	1	558	135	2	25	35
Maximum (ppb)	25	43 255	1 000	12	165	9 000

OTA

679 | 1 089

958

71%

4 521

16 26

T2

1 231

88%

**ZEN** 1 648

2 192

75%

950 13 000

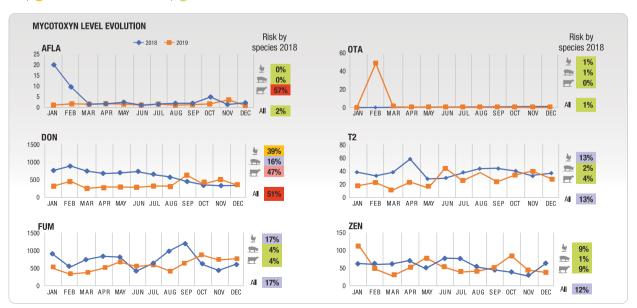
82

(1) wheat, barley, oat, rice sorghum, triticale...

3/							
7/5	OLEAGINOUS <sup>(2)</sup>	Alfa	DON	FUM	OTA	T2	ZEN
1/5	Number contaminated samples	603	483	73	141	96	454
	Number samples	848	798	262	198	209	588
	% contaminated samples	71%	61%	28%	71%	46%	77%
	Average of contaminated (ppb)	2	238	73	6	15	90
	Maximum (ppb)	300	3 200	500	150	117	1 652

(2) rapeseed, soybean, canola, sunflower, cottonseed, sunflower, palm kernel, nut...

↑ O Extreme risk	50 – 100 %	↑ O High risk	20 - 30 %
Severe risk	40 - 50 %	Moderate risk	10 - 20 %
Very high risk	30 – 40 %	O Low risk	00 – 10 %



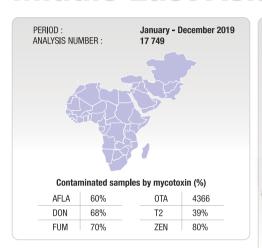
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# **PROMOTE**®



# Middle East Asia & Africa



Risk by species			Global risk
			19%
13%	6%	19%	

#### FOCUS

- High FUM (70%) and ZEN (80%) contamination rate
- Extreme Afla risk for ruminant species
- High FUM risk for poultry species
- High ZEN risk for poultry and ruminant species

Al	NALYSIS BY MAIN FEED MATERIAL						
	CORN	Alfa	DON	FUM	OTA	T2	ZEN
	Number contaminated samples	749	1 032	1 244	942	541	1 067
	Number samples	1 336	1 514	1 507	1 484	1 439	1 500
	% contaminated samples	56%	68%	83%	63%	38%	71%
	Average of contaminated (ppb)	12	307	1 612	230	19	69
Ī	Maximum (ppb)	500	6 000	25 000	5 100	600	1 400

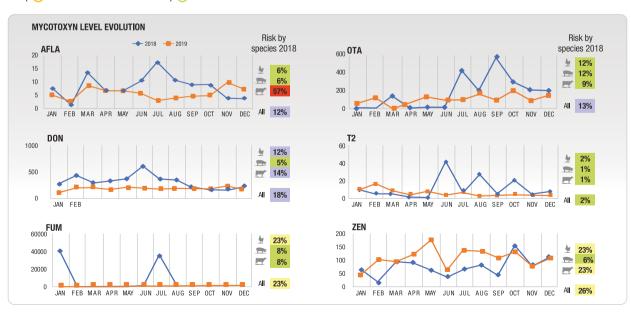
841						
CEREALS <sup>(1)</sup>	Alfa	DON	FUM	OTA	T2	ZEN
Number contaminated samples	235	323	102	176	118	317
Number samples	324	388	262	284	316	376
% contaminated samples	73%	83%	39%	62%	37%	84%
Average of contaminated (ppb)	5	209	199	114	12	55
Maximum (ppb)	150	1 900	3 521	5 600	139	830

(1) wheat, barley, oat, rice sorghum, triticale...

3							
7/5	OLEAGINOUS <sup>(2)</sup>	Alfa	DON	FUM	OTA	T2	ZEN
1/2	Number contaminated samples	713	720	691	816	453	1 041
	Number samples	1 184	1 143	1 154	1 176	1 103	1 148
	% contaminated samples	60%	63%	60%	69%	41%	91%
	Average of contaminated (ppb)	7	110	321	68	10	221
	Maximum (ppb)	265	2 751	46 000	5 100	407	1 830
	(0) / / / / //	, ,					

(2) rapeseed, soybean, canola, sunflower, cottonseed, sunflower, palm kernel, nut...

<b>†</b> C	Extreme risk	50 – 100 %	<b>†</b> O	High risk	20 – 30 %
	Severe risk	40 - 50 %		Moderate risk	10 - 20 %
	Very high risk	30 - 40 %		Low risk	00 - 10 %



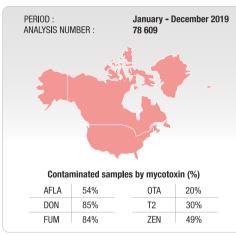
March 2020 ● **POULTRY FORTUNE** ● 25

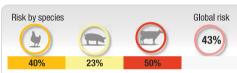
**ARGILL WORLD MYCOTOXIN SURVEY Jan - Dec 2019** 

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# **North America**





- High DON (85%) and FUM (84%) and contamination rate
- Extreme Afla risk for ruminant species
- Extreme DON risk for poultry and ruminant species; severe DON risk for swine species

  Severe FUM risk for poultry species

  High ZEN risk for poultry and ruminant species

ANALYSIS	BY MAII	N FEED I	<b>MATERIAL</b>

	CORN	Alfa	DON	FUM	OTA	T2	ZEN
1	Number contaminated samples	10 650	17 568	15 515	22	109	1 324
	Number samples	20 687	21 309	18 321	142	385	2 165
	% contaminated samples	51%	82%	85%	15%	28%	61%
	Average of contaminated (ppb)	3	1 279	1 534	2	89	234
	Maximum (ppb)	292	24 816	49 328	10	460	4 618

71						
CEREALS <sup>(1)</sup>	Alfa	DON	FUM	OTA	T2	ZEN
Number contaminated samples	236	10 661	0	-	5	177
Number samples	338	12 009	43	-	9	1 909
% contaminated samples	70%	89%	5%	-	56%	19%
Average of contaminated (ppb)	4	1 139	3 700	-	42	71
Maximum (ppb)	17	14 700	5 000	-	60	592

(1) wheat, barley, oat, rice sorghum, triticale...

	10						
7/	OLEAGINOUS <sup>(2)</sup>	Alfa	DON	FUM	OTA	T2	ZEN
B	Number contaminated samples	1 503	9	9	9	10	47
*	Number samples	1 809	51	51	12	14	59
	% contaminated samples	83%	18%	18%	75%	71%	80%
	Average of contaminated (ppb)	6	298	79	2	47	195
	Maximum (ppb)	200	1 100	200	5	168	1 204

(2) rapeseed, soybean, canola, sunflower, cottonseed, sunflower, palm kernel, nut...

<b>↑</b> O	Extreme risk	50 – 100 %	<b>†</b> O	High risk	20 – 30 %
Ŏ	Severe risk	40 – 50 %	O	Moderate risk	10 - 20 %
O.	Very high risk	30 - 40 %		Low risk	00 - 10 %



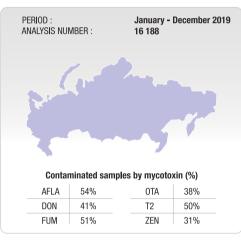
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# **PROMOTE**®



# Russia



Risk by species			Global risk
			13%
9%	3%	17%	

#### **FOCUS**

- Importment Afla (54%), FUM (51%) and T2 (50%) contamination rate
- Severe Afla risk for risk for ruminant species
- Very high DON risk for ruminant species; high DON risk for poultry species

ΔΝΔΙ ΥΚΙΚ	RV	MAIN	FEED	MATERIAL
ANALISIS	DΙ	IMMIM	LEED	WATERIAL

	4						
	CORN	Alfa	DON	FUM	OTA	T2	ZEN
J	Number contaminated samples	289	275	350	243	411	132
	Number samples	485	511	462	488	562	439
	% contaminated samples	60%	54%	76%	50%	73%	30%
	Average of contaminated (ppb)	8	591	1 078	8	127	50
	Maximum (ppb)	350	2 590	6 910	198	689	409

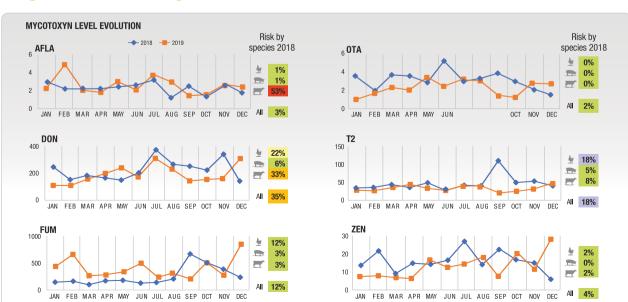
(F)						
CEREALS <sup>(1)</sup>	Alfa	DON	FUM	OTA	T2	ZEN
Number contaminated samples	759	413	50	484	603	201
Number samples	1 557	1 783	389	1 719	1 809	1 655
% contaminated samples	49%	23%	13%	28%	33%	12%
Average of contaminated (ppb)	4	353	206	6	49	34
Maximum (ppb)	39	2 220	1 980	51	1 010	299

(1) wheat, barley, oat, rice sorghum, triticale...

1	The second second						
7	OLEAGINOUS <sup>(2)</sup>	Alfa	DON	FUM	OTA	T2	ZEN
11/2	Number contaminated samples	172	437	42	210	305	349
· V	Number samples	320	665	99	473	597	541
	% contaminated samples	54%	66%	42%	44%	51%	65%
	Average of contaminated (ppb)	4	484	87	5	27	53
	Maximum (ppb)	28	2 290	600	25	210	802
	(0)						

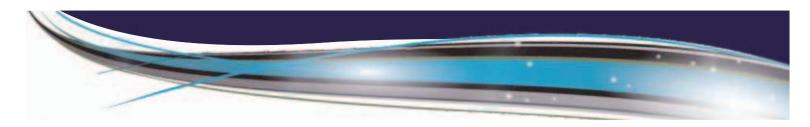
(2) rapeseed, soybean, canola, sunflower, cottonseed, sunflower, palm kernel, nut...

↑ O Extreme risk	50 – 100 %	🛉 🔵 High risk	20 – 30 %
Severe risk	40 – 50 %	Moderate risk	10 - 20 %
Very high risk	30 – 40 %	O Low risk	00 - 10 %



March 2020 ● **POULTRY FORTUNE** ● 27

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# **Central & South America**



Risk by species			Global risk
			28%
24%	8%	36%	

- High AFLA (71%), DON (72%), FUM (81%) and ZEN (76%) contamination rate
- Extreme Afla risk for ruminant species
- Very high DON risk for poultry and ruminant species
- Extreme FUM risk for poultry species
   Very high ZEN risk for poultry and ruminant

ANALYSIS BY	MAIN FEED	MATERIAL
-------------	-----------	----------

CORN	Alfa	DON	FUM	OTA	T2	ZEN
Number contaminated samples	5 812	4 997	6 134	1 641	1 735	4 300
Number samples	8 476	7 152	7 198	2 319	2 400	5 697
% contaminated samples	69%	70%	85%	71%	72%	75%
Average of contaminated (ppb)	5	524	2 442	47	22	155
Maximum (ppb)	580	8 000	60 000	7 100	1 000	4 958
	Number contaminated samples Number samples % contaminated samples Average of contaminated (ppb)	Number contaminated samples5 812Number samples8 476% contaminated samples69%Average of contaminated (ppb)5	Number contaminated samples         5 812         4 997           Number samples         8 476         7 152           % contaminated samples         69%         70%           Average of contaminated (ppb)         5         524	Number contaminated samples         5 812         4 997         6 134           Number samples         8 476         7 152         7 198           % contaminated samples         69%         70%         85%           Average of contaminated (ppb)         5         524         2 442	Number contaminated samples         5 812         4 997         6 134         1 641           Number samples         8 476         7 152         7 198         2 319           % contaminated samples         69%         70%         85%         71%           Average of contaminated (ppb)         5         524         2 442         47	Number contaminated samples         5 812         4 997         6 134         1 641         1 735           Number samples         8 476         7 152         7 198         2 319         2 400           % contaminated samples         69%         70%         85%         71%         72%           Average of contaminated (ppb)         5         524         2 442         47         22

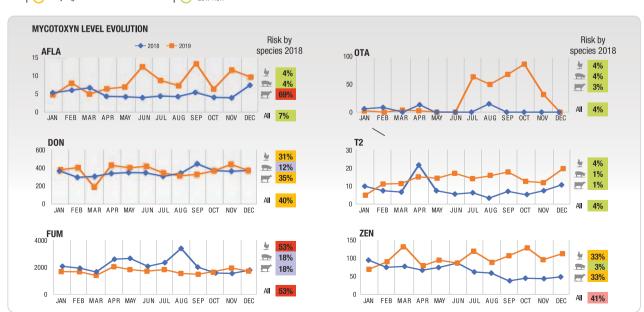
Alfa	DON	FUM	OTA	T2	ZEN
2 389	2 376	1 124	506	483	980
3 077	2 954	1 474	826	703	1 249
78%	80%	76%	61%	69%	78%
5	372	319	7	12	47
425	6 000	3 335	500	74	811
	2 389 3 077 78% 5	2 389 2 376 3 077 2 954 78% 80% 5 372	2 389 2 376 1 124 3 077 2 954 1 474 78% 80% 76% 5 372 319	2 389         2 376         1 124         506           3 077         2 954         1 474         826           78%         80%         76%         61%           5         372         319         7	2 389     2 376     1 124     506     483       3 077     2 954     1 474     826     703       78%     80%     76%     61%     69%       5     372     319     7     12

(1) wheat, barley, oat, rice sorghum, triticale...

9							
7/3	OLEAGINOUS <sup>(2)</sup>	Alfa	DON	FUM	OTA	T2	ZEN
1	Number contaminated samples	743	314	228	242	192	463
	Number samples	1 137	580	515	485	462	578
	% contaminated samples	65%	54%	44%	50%	42%	80%
	Average of contaminated (ppb)	80	110	183	119	18	197
	Maximum (ppb)	495	700	1 253	2 589	170	1 700

(2) rapeseed, soybean, canola, sunflower, cottonseed, sunflower, palm kernel, nut...

↑ O Extreme risk	50 – 100 %	High risk	20 - 30 %
Severe risk	40 - 50 %	Moderate risk	10 - 20 %
Very high risk	30 - 40 %	O Low risk	00 - 10 %



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# PROMOTE®



ZEN

1 890

2 582

73%

245

6 000

ZEN

779

1 314

59%

42

883

OTA

396

1 249

32%

139

OTA

462

813

57%

4 23

34 146

114

1 250

T2

932

1 873

50%

20

400

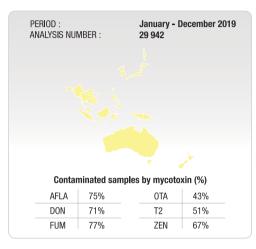
T2

219

441

50%

# **South East Asia**



Risk by species			Global risk
			25%
21%	13%	32%	

#### FOCUS

- High ALFA (75%), DON (71%), FUM (77%) contamination rate
- Extreme Afla risk for ruminant species. HIGH ALFA risk for poultry and swine species
- Very high DON risk for poultry and ruminant species
- High FUM risk for poultry species

CORN		Alfa	DON	FUM
Number contaminated sam	ples	4 460	2 372	2 551
Number samples		5 620	2 944	2 731
% contaminated samples		79%	81%	93%
Average of contaminated (	ppb)	20	1 167	1 434
Maximum (ppb)		005	10.000	44 000
махинин (рри)		235	19 000	44 000
CEREALS(1)		Alfa	DON	FUM
0. /	ıples			
CEREALS(1)	ıples	Alfa	DON	FUM

-						
	(1) wheat.	harley	nat	rice	sorahum	triticale

Average of contaminated (ppb)

Maximum (ppb)

1							
16	OLEAGINOUS <sup>(2)</sup>	Alfa	DON	FUM	OTA	T2	ZEN
1	Number contaminated samples	747	393	412	254	328	623
	Number samples	1 206	944	904	736	641	1 052
	% contaminated samples	62%	42%	46%	35%	51%	59%
	Average of contaminated (ppb)	10	172	108	5	26	87
	Maximum (ppb)	200	1 540	1 560	163	145	1 400

5

116

256

4 450

(2) rapeseed, soybean, canola, sunflower, cottonseed, sunflower, palm kernel, nut...

<b>†</b> O	Extreme risk	50 – 100 %	10	High risk	20 - 30 %
0	Severe risk	40 – 50 %		Moderate risk	10 - 20 %
	Very high risk	30 - 40 %		Low risk	00 - 10 %



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# PFI President Ramesh Khatri demands centre not to allow import of Chicken legs



Ramesh Khatri presents memorandum to the Deputy Commissioner of Sonepat, Dr Ansaj Singh.

Sonipat, February 24 The president of Poultry
Federation of India Mr
Ramesh Kumar Khatri
presented a memorandum
to the Deputy Commissioner
of Sonepat, Dr Ansaj Singh
on behalf of the Federation
which was farwarded to the
Prime Minister of India Mr
Narender Modi to save the
poultry industry which is on
the verge of destruction.

After submitting a memorandum to the Deputy Commissioner, Mr khatri expressed apprehension that Government of India is planning to reduce the imported duty on chicken legs and this decision would destroy poultry Industry of the country. He was of the view that by reducing the duty the poultry industry would not be able to survive for long as the poultry sector has suffered a huge loss since last one year as the prices of raw material had increased manifold.

He further said that if the

import duty which was being leveid 100 percent at present would be reduced it would adversely affect the poultry Industry. He further maintained that if the American chicken products are promoted in India, then it would be very difficult to save the self made poultry farming sector of India worth Rs one Lakh crore and providing job opportunities to over two crore people of India.

The president asserted that the import duty should not be lowered from 100 percent to save the poultry sector. He expressed reservation and pointed out that the raw material including the prices of maize, Bajra and oil seeds had increased substantially which had adversely affected the poultry Industry. While detailing out the loss in the sector, he apprised that the cost of production of an egg is pegged at Rs four

and 10 paise and the whole sale price of an egg in the market is Rs 3.50 per egg thus the industry is facing acute loss since last one year. He urged that a level playing field be given to the

industry. He also demanded that the feed of Bajra and Maize be provided at the lower import duty as India was the largest consumer of raw material. He further said that the poultry sector had



#### POULTRY FEDERATION OF INDIA

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Phone: 0124-4095090, +91 957522224, Email: Info@poultryfederation.org
Website: www.poultryfederation.org

То

Honb'le DC / DM Distt:

#### SUBJECT: SUBMISSION OF AN OPEN LETTER TO PMO, INDIA

Respected Sir,

As a representative to the Government, we would like to represent the poultry farmer of India through your good-self to the PMO and the Government of India.

Trump wants to kill Indian Poultry Sector for America Chicken

#### Industry

Government has no right to destroy self-made Poultry industry creating Rs.100,000 crore turnover and about 2 crore jobs in rural India, to please US President Mr.

Government of India has not given any support to poultry farmers:

- no subsidy,
- no insurance .
- no infrastructure support,
- no marketing support,
- no extension services,
- no health care facilities.
- no feed subsidy,
- No technologies to reduce feed cost,
- no electricity subsidy,
- no poultry housing subsidy

...virtually nothing.

Poultry farmers on their own created the industry worth Rs. 100,000 Crores and created jobs for 2 crore people in rural India.

In place supporting poultry sector, Modi government is planning to open the poultry sector to subsidised products of American at low duty rate.

Why Modi government is planning to kill livelihood of 2 crore people to please one person from USA for political gains.

#### Small Indian Poultry Farmers Demand from Prime Minister Modi:

- 1. Give us level playing field
- 2. The same duty should be for the feed materials from the world market so that we can compete with imported subsidised products
- 3. If government cannot ensure fair market for farmers, it has no reason to destroy the same
- With poultry maize and oilseed farmers will also suffer as poultry is largest consumer for agricultural produce of India.
- About 100 billion US Dollar rural economy and about 4 crores rural jobs will be destroyed if India reduces duties on poultry products from the USA.
- If you want to help America farmers allow raw material like soya and maize at lower duty, not finished goods like poultry.

Modi ji, Indian farmers voted for you to support and protect Indian farmers and help double their income. American farmers are not your voters. Why you are coming under pressure to support American farmers those who are getting heavy subsidies from US government.

Poultry Farmers want "Level Playing field".

This is our right.

If you can't help Indian Poultry farmers, then don't kill Indian Poultry farmers.

Regards

Chandle

Ramesh Chander Khatri President Poultry Federation of India

Secre

CC to PMO Ranpal Dhanda Secretary Poultry Federation of India

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great hope from the prime minister Mr Narender Modi as he had done a lot for the farmers of the country. With a view to double the farm income, a number of schemes had been launched including Prime Minister Farmers Samman Scheme, besides providing rumenrative prices of their produce. Under the Scheme a sum of Rs 6,000 were being given to the farmers in three installments in a year. About 12 crore farmers were getting benefitted of these innovative schemes. He revealed that about 26 crore eggs were being produced in India daily and



about 50 lakh units were working in the country and which about 4 crore people were engaged in this sector through out the country including medicine and equipments.

He hoped that the Prime Minister would protect the interests of poultry farming community and urged that the import duty should not be reduced from 100 percent, rather it should be interested to save farming community of the country with out any political pressure to be exerted during the visit of present of America Mr Donald Trump.

Victam Corporation and VIV worldwide continue their partnership in 2022

Last year the Victam
Corporation and VIV
worldwide announced
their partnership in Asia
for the VICTAM and Animal
Health and Nutrition Asia
2020 exhibition in Bangkok,
Thailand.

Today it was announced that the two exhibition brands will further continue their partnership by organizing VICTAM International and VIV Europe together at the Jaarbeurs exhibition grounds in Utrecht in 2022 from May 31st – June 2nd.

"This means that the VICTAM International exhibition will move back from Cologne, Germany to its home country, the Netherlands, and where it all started in 1965, the Jaarbeurs in Utrecht. The set-up of the exhibition is different from the set-up in Asia as VIV Europe and

VICTAM International will be co-located but with each exhibition in their own halls," says Mr Sebas van den Ende, General Manager of the Victam Corporation. "We are enthusiastic about the synergy and good cooperation that VICTAM and VIV have established. This partnership continues with a different program in Europe, which will bring to the animal husbandry industry an even wider and richer platform in 2022. We look at the colocation of VIV Europe and VICTAM International as an important achievement after nearly 4 decades of independent growth and development of the respective events in Europe and in the world," says Mr. Heiko M. Stutzinger, Director of VIV worldwide, and Managing Director of VNU Asia Pacific.

"Today, the strong network of VICTAM in feed technology and animal feed processing, together with the Feed to Food concept that VIV Europe is famous for, are ready to deliver a very complete and professional platform

to exhibitors and visitors." concludes Mr. Stutzinger. The organizers are looking forward to welcoming the feed and animal health industries from May 31st – June 2nd, 2022 at Jaarbeurs in Utrecht, The Netherlands.

## SDC's YSN Murthy celebrates his son Vivek's wedding with Kavya Valli at Hyderabad



Y.S.N. Murthy, Executive Director, SDC Group celebrated the marriage of his son Vivek with Kavya Valli on February 5 at Hyderabad. Seen in the picture from left: Y.S.N Murthy, Vivek, Kavya Valli, Saila Prabha and Dr Chaitanya.

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# **A Surgical Strike** on Bacteria

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alternative to antibiotic



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### Staphylococcus Aureus





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# Chicken and Egg Mela attracts huge crowds in Hyderabad; Ministers, celebrities dispel fears over Coronavirus



Telangana Satate M.P. Dr G. Ranjith Reddy, Ministers T. Srinivasa Yadav, K.T. Rama Rao Eatela Rajender and Srinivas Goud encouraged people to eat Chicken by displaying eating of Chicken items themselves in Hyderabad on February 28.

Hyderabad: It was an evening of fun, entertainment and mouth-watering egg and chicken snacks to dispel misconceptions and drive home a message that there is no truth in the rumours that the dreaded Corona Virus (Kovid19) will be spread by chicken.

Worried that the baseless rumours linking the virus with chicken has hit the poultry industry and farmers, Telangana Poultry Federation, Telangana Poultry Breeders

Association, National Egg Coordination Committee and All India Poultry Development and Services Pvt Ltd, mounted a huge awareness campaign -Chicken and Egg Mela- at People's Plaza, Necklace Road here on February 28. The widely publicised event attracted thousands of people for an evening that doled out authentic and scientific information that

people should not fear

eating eggs and chicken

that are rich in protein and

rumours spread by social media.

The consumption of chicken dropped by 30 % and as a result chicken prices also crashed. Central and State governments and the World Health Organisation issued statements that Corona Virus would not be spread by consuming chicken and it was safe for people to eat chicken and eggs.

Health Minister Eatela Rajender said unnecessary scare was created by social media. There was not even a single case of Corono Virus reported in Telangana. Industries Minister K.T.Rama Rao said baseless rumours affected thousands of poultry farmers and he said they ate chicken and eggs at home daily. Film Star Rashmika too vouched for the safety of chicken and that it was part of her daily diet.

Several film and TV celebrities, Ministers
Talasani Srinivas Yadav and Srinivas Goud, MP Dr Ranjit
Reddy lent support to the event and exhorted people not to believe baseless rumours and partook chicken and egg snacks to give confidence to people.

Thousands turned up for the event and consumed chicken and egg snacks. The poultry industry got together to prepare 6,000 kg of chicken items, mainly dry finger foods and 20,000 boiled eggs to serve to about 25,000 visitors to the mela free of cost. The aroma of freshly fried chicken filled the air near People's Plaza.

TV anchor Shiva Jyothi, Bithir Satti, playback singer Anudeep, Lipsika, award winning baby singer Saiveda Vagdevi and others turned up to support and entertain the event.

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Poultry stakeholders distributing Chicken items to people.

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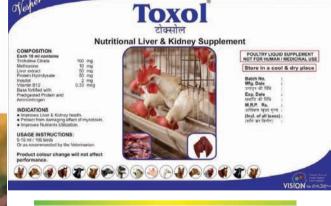














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# Chhattisgarh's poultry industry feels Coronavirus pinch, prices crash to all-time low

RAIPUR: Rumours on social media about the spread of coronavirus - COVID-19 - through consumption of chicken and eggs are rife and this has beaten down the poultry prices across the state.

The poultry industry in Chhattisgarh has witnessed an all-time low slump of 70 per cent in the past few days. Poultry industrialists say that it was for the first time that they saw lesser sale of eggs and chickens than they faced the month of Savan and Navratra festival.

Doctors and veterinarians, however, urged people not to chicken out and said that the most common origin of the Wuhan virus possible is through bats and predominantly it's a flu that spreads from human-to-human.

Coronavirus broke out in China as an epidemic and it is feared that few Indians too might be suffering, the suspected cases were being tested.

Amid rumours that Coronavirus spread through consumption of chicken, eggs and meat; many people have given up eating non-vegetarian food even, but the ministry of animal husbandry has issued a clarification stating that it was safe to eat poultry food. TOI spoke to affected poultry industrialists who said that retail price of broiler chicken has plunged from Rs 140-160 to Rs 85 per kilogram in past few



days and prices of eggs too have reduced to few rupees. It's only the regular non-vegetarians (30 per cent population) who are continuing with the consumption of non-veg food.

Sanjay Brahmankar, the president of Chhattisgarh breeders' association said, "the industry has witnessed biggest hit of its time and the poultry sale has slumped to 70-75 per cent in past fortnight. Initially, we were confused why the consumption suddenly dropped as we believed there was no technical connection between Coronavirus and birds. It came as a surprise to know that people were preventing themselves from chicken and eggs because of the rumours that are doing the rounds on Internet."

According to Santosh Singh, a businessman and meat-lover, "my family and I along with few friends have consciously given up consuming chicken because we have been believing that the deadly coronavirus is spreading due to eating birds."

When contacted, Dr Alauddin Farishta, a senior cardiologist said, "Coronavirus is like any other flu that has taken shape of an epidemic through a viral infection. While it's origin is unclear and nothing can be said about how it spreads, but chicken or egg cannot be solely held responsible for a disease of this magnitude. There is no need to avoid such food. For Indians, it's best to gargle twice in case of cough or cold and avoid contacting persons suffering from the flu."

Dr Manoj Shukla, a veterinarian poultry consultant in Raipur said, "amid China still investigating the real source of virus, we have already given up on eggs and chickens due to false rumours? Chickens and eggs rather provide highlevel of immunity to human bodies to fight influenza. Coronavirus has no factor that mingles between birds and human beings. The only initial transmission of Coronavirus possible to humans is through mammals i.e., bats which

could be infective."

Dhanraj Banerjee, secretary of central India Vencob broiler breeders' association appealed, "the industry which has about 8,000 farmers across the state and about four lakh people are being affected directly or indirectly connected to this field, is facing market slowdown with grave losses due to fake news being circulated on social media. I request people to rely on social media messages only after checking its authenticity."

In a letter to the poultry federation of India, animal husbandry commissioner Dr Praveen Malik said consumption of chicken and other livestock is safe.

"This is to clarify that the predominant route of transmission of 2019 nCoV, appears to be human-to-human, as per world organisation for animal health (OIE) though 2019 nCoV may not have had an animal source, which requires further investigation", said Malik.

"Poultry has not been found to be involved in the transmission of 2019 nCov to humans so far in any report globally", he added.

The letter also mentioned that similar viral outbreaks of Coronavirus in past (SARS 2002-03, MERS 2012-13) or corona-associated common cold were not involved with poultry and poultry products worldwide.

"Thus, with knowledge of present affairs of 2019 nCoV, consumption of poultry and poultry products may be considered safe. The general principles of hygiene, however, may be followed as per the suggestions of world health organisation (WHO) or OIE.

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# Kemin Champions League"Why should only kids have all the fun?"

The much-awaited "Kemin Champions League" was held on Friday 24th Jan 2020 with great zeal and excitement. The program began with the flag hoisting ceremony by Dr Suresh, President, which set the tone for the rest of the events. This was entailed by outdoor and indoor games wherein the participants participated with full verve and vigour. It was a delight to see the excitement with which the employees challenged themselves to attempt a variety of games like Cricket, Volleyball,

Ring ball, Tug of War, Table Tennis, Arm Wrestling and many more.

Remembering the good old days at school, sitting in the sun, with colour-coded caps, basking with our tanned skin and cheering for our mates. Seems like going down the memory lane! We re-lived those moments during the sports meet. It was a day filled with fervour and exhilaration, amidst thrills and cheers. The spirit writ large on each of participant's faces were "Why should only kids have all the fun!?!"











## **Kemin hosts National Road Safety Week**



The Ministry of Road Transport & Highways, Govt. of India had announced the observance of 31st National Road Safety Week between 11th -17th January 2020. Kemin organized a 4-day road safety awareness campaign in its Gummidipundi factory premise. Various programs related to road safety were organized to edify employees and drivers about safety, driving rules and cautions.

Road safety week is a national event aimed at raising public awareness about traffic rules and ultimately to reduce casualties due to road accidents. It is unfortunate that millions lose their life or get injured in road accidents, mainly, due to lack of awareness about traffic rules or behaviour of ignoring them. Therefore, to make people more aware of the traffic rules and to persuade them to follow rules while on road, Road Safety Week is observed every year.

The event started with employees taking the road safety pledge, followed by eye check-up camps. Interactive sessions on Motor vehicle Insurance

and Defensive Driving
Training Program for
drivers were conducted.
All employees and drivers
took active participation
in the campaign from day
one. The event has given an
insight to all the participants
on the importance of road
safety rules and effects of
failures and violations were
addressed. Road safety
posters were stuck on all
the vehicles as part of the
awareness campaign.

The event was concluded with the message to take similar care and concern throughout the year. Mr. Murugan, Sr Manager, Process Engineering, shared the importance of defensive driving skills to wheel off any threat even if we are not at fault. Road safety campaigns are an important tool to recognize the behaviour of road users. The results of road safety campaigns depend primarily on the manner of communication and the effectiveness of the campaign. Road Safety Week is a chance for us to comprehend the preciousness of life and make people understand what could be done to save our own life as well as the life of others on the road.



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# "The World Mycotoxin Forum" to Asia: Key Learnings

Dr Swamy Haladi, MVSC, PhD

Global Program Manager, Trouw Nutrition

The significance of mycotoxins in the food chain is manifold. Historically they have been recognised for causing hallucination and gangrene in humans. Since the outbreak of aflatoxicoses in turkeys in The United Kingdom in 1960's, the research and awareness on these fungal toxins skyrocketed. Mycotoxins affect human and animal lives through their impact on economic, social and health aspects (Table 1).

Acute mycotoxicoses in humans have drastically reduced over the last few decades, but not completely eliminated. A case of acute aflatoxicosis killing 20 people was reported as recently as in 2016 in Tanzania. The population was exposed to corn contaminated with 50 parts per million (ppm) aflatoxins (WMJ, 2018). Liu and Wu (2010) reported between 25,000 and 155,000 global annual human liver cases were attributed to aflatoxin exposure.

Table 1. Socio-economic impact of mycotoxins

Sl. No.	Parameters	Associated Costs
1	Crop damage and poor yields	Lower value, trade losses, destruction costs
2	Additional sourcing of raw materials	Logistics cost / lack of local knowledge
3	Decreased efficiency in livestock production	Poor weights, egg production and milk production related revenue losses
4	Animal welfare (livestock, pets) / human health	Health costs
5	Mitigation and intervention costs	Grain treatment costs, mycotoxin binder development costs
6	Quality Control challenges	Cost of testing, capital investment on labs
7	Hunger (Africa/Asia/ South America)	Can't be measured in terms of money

Source: Niemeijer, WMFmeets Asia 2020

The significance of mycotoxins is so high that once in two years experts from all over the world join at "The World Mycotoxin Forum" (WMF) to discuss various aspects related to mycotoxins. WMF is the leading international meeting series on mycotoxins where food and feed industry representatives meet with representatives from universities, governments and regulatory bodies from around the world.

For the first time in January 2020, WMF came to Asia. The event was conducted in Bangkok, Thailand from 13th to 15th January. The 12th conference offered a unique platform for the food and feed industry, science and regulatory authorities to exchange current knowledge, to promote harmonization of food and feed safety regulations and control procedures, and to make recommendations for integrated strategies ensuring the safety and security of food and feed supply chains. Plenary sessions were chaired by Prof. Rudolf Krska, Department IFA-Tulln, BOKU Vienna, Austria and Prof. Chris Elliot, The Institute for Global Food Security, Queen's University Belfast, Northern Ireland.

### Why Asia in 2020?

Until last month, WMF was conducted only in Europe. The organizers selected Asia for the obvious reasons. Asia is the largest and the fastest growing animal industry in the world. The crop growing conditions of high temperature, rainfall and humidity make commodities highly susceptible for mold contamination and mycotoxin production. Many Asian countries are looking at exporting agricultural products, such as spices, coffee, meat and milk, to western countries and hence need to follow mycotoxin regulations set by European Commission and FDA in US. Therefore, the organization of WMF event in Asia can attract greater number of stakeholdersand provide a platform for effective discussion and implementation of quality standards. The program was oriented more towards Asian needs to provide them helping hands.

### Day 1, 13th January:

- 1. The conference reconfirmed that 25% of world's raw materials are contaminated with mycotoxins at levels above European Food Safety Authority (EFSA) recommendation. However, up to 60% of raw materials can be contaminated with mycotoxins above the limit of detection.
- 2. Climate change will enhance the toxigenic fungal growth and mycotoxin production. For example higher CO2 levels combined with higher temperatures further increase aflatoxin contamination in maize.





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- 3. Although all key mycotoxins are not regulated in ASEAN region, there are task forces in place to regulate them in the coming years. Many Asian countries follow either FDA or EU regulations on mycotoxins.
- 4. Analytical and remediation innovations will continue to evolve from key companies working in this area. Real-time mycotoxin analysis data from the field should be used to monitor and manage mycotoxins effectively.
- 5. In vitrotesting of mycotoxin binders should be done with careful consideration for physiology of the species in question, themycotoxins in question as well as the inclusion rate of mycotoxin binder to be used under field conditions.

### Day 2,14th January:

- 1. All the Asian countries shared their share of pain in dealing and regulating mycotoxins in feed and food. There were many presentations from Thailand as it was the host country.
- 2. Although aquaculture is a fast growing industry, the mycotoxin research and development is limited. There should bemore focus on this area in the coming years. Shrimp is very sensitive to deoxynivalenol (DON, limit of 300ppb) and aflatoxins (limit of 30ppb). The amount of mycotoxins present in aqua feeds depends on the aqua species in question and the feed composition. The transfer of mycotoxins to humans via aquaculture can be a potential threat and hence attention is needed.
- 3. Mycotoxin detoxification innovations should be practical and cost-effective. They should be proven both in vitro and in vivo. Even if they are successful under in vivo tests, clear mode of action should be elucidated. Oxido-reductive enzymes are also showing promises in this direction.
- 4. Poultry under Antibiotic Growth Promoter (AGP)-free production system are more susceptible to mycotoxins. DON at levels of only 2ppm was able to cause poor performance in broilers reared in AGP-free production system.
- 5. Post-harvest loss prevention innovations in developing countries are very crucial. In many developing countries around the world, grain production is not a major issue but the post-harvest management is.

### Day 3, 15th January:

Day 3 of WMF was really thought provoking as many food processing scientists asked intriguing questions to the audience. Some of them are as below and an effort is made to relate them to animal industry.

- 1. Food processing can lead to the generation of new mycotoxin products in addition to the parent compound. Are they less toxic and safe? Can the pelleting of animal feed produces such products? Since most animal feeds are either mash or pellets, more research is needed to ascertain whether pelletizing can produce new mycotoxin derivatives.
- 2. Mycotoxin biomarker analysis in human blood and urine will give an idea of mycotoxin exposure. Can this be

- applied in animal industry similar to that of aflatoxin M1 in milk?
- 3. Can the processing of cereal grains reduce mycotoxin levels? If so, is there any difference among different mycotoxins? Answer is yes. It depends whether toxin is hydrophilic or hydrophobic.
- 4. Is coffee free from mycotoxins? Answer is no. Exposure depends on the extent of coffee roasting and post-harvest management. Can such coffee waste and other plant byproducts get into animal feed?
- 5. How food and feed fraud is contagious today and can this be done using mycotoxins? Answer is yes. Feed fraud is more rampant than food fraud.

### **Conclusions**

The arrival of World Mycotoxin Forum to Asia has really opened the eyes of the local people to the potential socioeconomic and regulatory challenges of mycotoxins. The organization of such events more frequently in Asian region will help in mitigating mycotoxin challenges. Such events also help in enhancing the ability of Asian countries to export their plant- and animal-original products to the more lucrative western market.



Figure 1. Trouw Nutrition (Gold Sponsors) at the event



Figure 2. Plenary session on Day 3

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## **Hatching Egg Quality**

### **Highlight Points**

The quality of hatching eggs is very important in producing quality day old chicks. Most eggs are clean when they are laid, but become contaminated with manure and other foreign material. Management plays an important role in controlling all these factors to produce eggs of high quality.

## **G.K.Rathinam**Managing Director of Herbal Consultants Pvt Ltd

Hatching egg quality forms the basis of successful production of top quality chicks. Hatching egg quality is not simply a clean, even colored egg, but rather is one which has the correct balance of essential nutrients and water for the embryo development as well as being clean and free from contamination by microbes or their spores.

In addition, the embryo has to be in the best possible stage of development to survive the storage period before true incubation starts.

Top quality hatching eggs can be produced from breeding stock in the best of health and condition. Overcrowding, lack of food or water can all lead to stress and a reduction of in the efficiency of egg production, decreasing the nutritional status of the eggs.

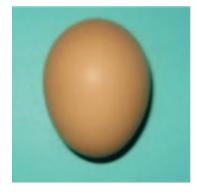
Such changes in egg quality are not immediately obvious, e.g. vitamin deficiency, but can affect subsequent survival of embryos during development or of chicks on the growing farm. Other changes, such as reduced egg production, are more obvious.

Egg shell quality can be affected by the health and nutrition of the hen and in turn this can affect the weight loss from the egg and therefore hatchability.

Hatching egg quality can deteriorate during the period after it leaves the bird and before it is incubated. Poor nesting conditions and long periods before egg collection can lead to contamination of the eggshell surface.

Cracks in the eggshell can be produced by poorly designed or maintained nests or by the egg being trampled by the





birds prior to collection. Cracks allow infection into the egg, significantly reducing its quality.

Egg handling can also reduce the viability of hatching eggs. If the hands of the person collecting eggs are contaminated with faeces or egg contents then previously clean eggs can be ruined by the simple

action of picking them up.

Contamination can similarly occur if the egg holding containers, egg flats or setting trays are not cleaned between batches of eggs.

Hatching egg quality can also be lowered by the means by which eggs are transported. In general, rough handling and transport will tend to disrupt the internal structure of the egg, which may lower the viability of the embryo.

Storage conditions for eggs on the farm or in the hatchery can also adversely affect egg quality. Egg selection for incubation can also have important effects on overall egg quality. The practice of setting poor quality eggs, such as floor and cracked eggs, can lead to enormous problems of contamination of the setters, hatchers and chicks.

Poor survival of chicks on the growing farm due to yolk sac infection may not primarily be a hatcher problem but simply a symptom of setting contaminated eggs.

Consequences of microbial contamination of hatching eggs:

- 1. Low/ poor hatchability
- 2. Embryonic death at all stages of development
- 3. Rotten eggs which explodes in the incubators or at transfer
- 4. Contamination of setters and hatchers which can infect other uninfected eggs which follow on
- 5. Yolk sac infection via unhealed navels in the hatcher
- 6. High mortality of chicks during the first week on the growing farm

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## Disease Prevention through Continuous Disinfection

**Product Management Cell, VENWORLD** 

### **Highlight Points**

► Continuous disinfection is helpful for securing farm from outside infection & controlling spread of infection between sheds in the farm, to prevent introduction of infectious agent to poultry and to minimize incidence & spread of disease in presence of bird. ► Continuous disinfection routines take into account the different disease problems which occur at different stages of production. ► Continuous disinfection is needed to improve immune response, to improve all production parameters, to reduce infections, to reduce morbidity and mortality, to reduce cost of production & cost of medication.

The control of infectious diseases, once the birds have been placed, involves the use of antibiotics for the control of bacterial diseases and the vaccination of the birds for the control of the viral diseases and some of the bacterial diseases. There are, however, certain problems when relying on these approaches for the effective control of diseases. This included world wide concern about the use of antibiotics in production animals and the development of antibiotic resistance in bacteria, breaks in the vaccine cold chain, incorrect vaccine application, use of incorrect vaccines for particular diseases and the ability of the pathogen to change in its antigenic expression which appears to be associated with this practices.

There is thus a need to investigate other options for the control of infectious diseases in poultry production. Some researchers have investigated the possibilities of disinfecting the air in poultry houses (Sobih, Dosoky & Ismail 1991; Vinokurov & Kholodov 1991). There are also reports of the treatment of the drinking water of chickens during production (Abdel-Wahed, Ati, Bafawy & ElAgrab 1994; Valerio, Larios, Vidal, Gutierrez & Rodriguez-Ferri 1997).

To solve the above mentioned problems the concept of using a nontoxic disinfectant for the continuous disinfection on birds is the best option.

Continuous disinfection kills any disease organisms like virus, bacteria, parasite, mold that might be present on a farm during production cycle. Continuous disinfection is helpful for securing farm from outside infection, decontamination of shed during production cycle, controlling spread of infection between sheds in the farm, to prevent introduction of infectious agent to poultry and to minimize incidence & spread of disease for economic viability of the project.

Continuous disinfection is needed to improve immune response, to reduce infections, to avoid environmental pathogen challenge, to reduce morbidity and mortality, to improve all production parameters, to reduce cost of production & to reduce cost of medication.

Continuous disinfection routines take into account the

different disease problems which occur at different stages of production. The following aspects will help to prevent the introduction, incidence and spread of disease.

### Aspects of continuous disinfection in Poultry farms:

- 1. Aerial disinfection in presence of birds.
- 2. Water Hygiene
- 3. Pipeline Cleaning.
- 4. Vehicle dip &Foot dip.
- 5. Equipment cleaning.
- 6. Egg cleaning.
- 7. Egg tray sanitation.
- 8. Cooling pad maintenance.
- 9. AI tips & Funnels.
- 10. Feed mill disinfection.
- 11. Rodent control.
- 12. Wild bird proofing.
- 13. Mortality disposal.

### 1. Aerial disinfection in presence of birds:

When a respiratory disease or other diseases shows up in a flock, it hits hard and fast. Within days of first bird showing symptoms, many of other birds will, too. As causative organism for such disease lies in and around the bird in air it is necessary to opt for aerial disinfection by suitable nontoxic disinfectant.

Spraying a fine disinfectant mist or fog over birds can help reduce cross infection and secondary infection during outbreaks of respiratory and other diseases. It is particularly of value in preventing secondary bacterial infection. Weekly once or twice spray of suitable disinfectants to control pathogen load around. Smaller the particle size of fog it will take more time to reach ground and will have more time to kill infectious organism in air.

### 2. Water sanitation:

Water is a critical, but often overlooked, nutrient. Animals can survive longer without food than they can without water. Water is involved in every aspect of animal metabolism. It plays an important role in regulating body temperature, digesting food, and eliminating wastes.

Maintaining drinking water quality for poultry is an important nutritional aspect as birds consume water at



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twice the level of feed. One prime factor that determines the wholesomeness of water is its microbial quality.

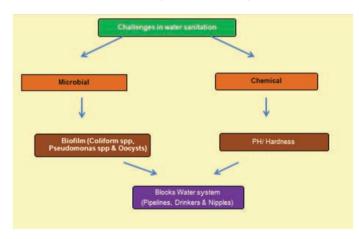
Water quality always keeps changing season to season. Mainly In summer time water hardness/ TDS increases because depletion in underground water level which adds up to more TDS and hardness. Microbial and chemical characteristics of water changeswith season which leads to scale and biofilm formation in the water supply system.

The goal of poultry water sanitation procedures and sanitizer/disinfectant products is to target microbial challenges that exist and thrive in water supplies whether they are bacterial, fungal, viral or protozoal. An ideal disinfectant used as a drinking water sanitizer should create disinfectant residual throughout the distribution system and should inactivate microbes, control biofilms or neutralize undesired contaminants.

Water sanitation is done to control &prevent water born infections, to reduce hardness, pH, bacterial load and to removes scale and biofilm formation in water tank and pipelines. Suitable water sanitizers should be used for water sanitation.

### 3. Pipeline flushing:

The water lines that carry the water to your birds are not



transparent; it is not possible to see what is happening inside them. There are many more chances of scale formation, rust, algae and dirt in the poorly maintained water lines. Formation of such material, forms the  $favourable\,condition\,for\,multiplication\,of\,microorganisms.$ 

Regular flushing of water lines is important to avoid clogging of valves and nipples. To remove scale build-up from the water lines, you will need to use a strong, acidic cleaner that is safe for nipple drinkers and can drop the pH of the water to below 6. Be aware that some acids break scale build-up into chunks, which can clog the system and prevent nipple drinkers from working properly.

For pipeline flushing calculate the water holding capacity of internal drinking lines and accordingly take the required quantity of water in the internal tank with extra 25 % water before using the specified quantity of sanitizing cleaner for flushing. The prepared solution was allowed to flow in the lines. For effective removal of biofilms, disinfection and descaling allow the solution to remain for 8-10hrs. After that water lines should be flushed with pressure water.

Pipe diameter	Water quantity per 100 ft pipe line	
½ inch	5 liter	
¾ inch	11 liter	
1 inch	20 liter	

Guideline to calculate water holding capacity of pipeline.

### 4. Vehicle dip & Foot dip:

The main entrance to the production area must be capable of being closed off to vehicle traffic (e.g. lockable gate which, where feasible, should be kept locked at all times) and must display appropriate signage including "Biosecure Area No Entry Unless Authorised".

There must be a parking area for vehicles not entering the production area. Any vehicle entering the site must pass through a wheel dip or vehicle sprayer.

Always dip feet in foot dip containing disinfectant solution before entering poultry houses. If boots are soiled, clean with water and a stiff brush before using foot bath. Footbath containing a suitable disinfectant should be used in accordance with company or manufacturer's instructions. Replace solution in foot baths every day.

### 5. Equipment cleaning:

Dirty equipment's are potential source of contamination to the birds as movement of equipment from one shed to other. Regular cleaning of equipment's will help in preventing disease transmission, biofilm formation and also salt / scales formation. Dip all removable equipment (feeder, drinker, travs and other equipment's in a tank containing suitable cleaner for 15 to 20 min. After that all equipment's wash with plain water & lastly spray all washed equipment's with suitable disinfectant.

### 6. Egg cleaning:

Egg cleaning is an important operation in poultry production systems because eggs often become dirty after laying. Dust, faeces, feathers and contents from broken eggs may soil the egg. Does not use sand paper to clean dirty eggs & avoid handling of clean egg unnecessarily. Always use suitable disinfectant solution to clean dirty egg. Lightly hand scrub or bandage cloths only used to remove dirt Wipe with suitable disinfectant solution & allow to air dry.

### 7. Egg tray sanitation:

Dirty egg trays are potential source of contamination to hatching eggs & birds as movement of egg trays from one unit to other, breeding farm to cold room, breeding farm to hatchery& exchange of trays at trader's level (Misshaped eggs/commercial eggs).. Dip returned trays in a tank containing suitable cleaner solution for 0.5 to 1 hr and then pressure wash with plain water. After cleaning use suitable disinfectant solution for disinfection of egg trays.

### 8. Cooling pad maintenance:

Scale formation on cooling pad obstructs air passage through it. Biofilm formation increases risk contamination as it harbours pathogenic organisms. Cooling pad damage leads to improper air movement and cooling. Replace damaged cooling pad. Biofilms and scale formation can be cleaned and pressure wash with suitable disinfectant solution.



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### 9. AI tips & Funnels:

Proper AI tips & Funnels cleaning helps to prevent cross contamination, restores sperm viability and maintain semen quality. After every use dip AI tips in suitable disinfectant solution for 30 minute and then wash with plain water. Sterilize AI tips & funnels before every use in autoclave. Change AI tips for every bird i.e. Do not use single AI tip for more than one bird.

### 10. Feed mill disinfection:

Regular feed mill disinfection is also very much important as it helps to control the contamination of microorganism into the feed or raw material. Thermal fogging is the best option for feed mill disinfection to maintain hygiene in feed mill.

### 11. Rodent control:

Rodents can spread more than 35 diseases most important are salmonella and fowl cholera and also acts as carrier in disease transmission. One pair of rat reproduce 800 rats in a year, in 3 years it produces 35 crores rats. Every rat eats 10 % of its body wt and approximately more than 20 grams of feed per dayand waste even more amount of the feed by contaminating with urine and faeces which contributes to huge economic losses.

To control rodent's baits of 2% zinc phosphide can be used along with traps. Bromadiolone can be also used in rotation with zinc phosphide.

### Bait formulation:

Flour	1 kg
Sugar powder	50 gm
Vegetable oil	50 gm
Zinc Phosphide	25 gm

### 12. Wild bird proofing:

Wild birds are natural reservoirs for pathogenic organism and have been implicated as the primary source of infection in disease outbreaks. Always protect shed & farm from wild bird entry.

### 13. Mortality disposal:

Dead bird disposal is very important and key area in maintaining bio-security. Throwing dead birds around the farm premise will like to invite trouble in terms of carrying and spreading the diseases. Additionally, wild birds or stray animals will help in spreading the same. It makes disposal of dead birds important.

Dead birds are potential source of infection if they are not properly disposed. Burning is the most reliable means of destroying dead bird. Disposal pits are commonly used because they are convenient, inexpensive and simple.



### **Recommended Continuous Disinfection Programme Schedule:**

### **Broiler:**

Process	Solution	Use	Dose
	UBC	Floor Cleaning	*2-20ml/litre of water
Cleaning	AQUAMAX	Flushing of nipple line / Equipment cleaning	20ml/litre of water
Continuous	B-904	"Weeklyaerial spray inside the shed	4ml/litre of water
Disinfection :	BIO-BUSTER		5g/litre of water
Water Sanitation	BVClO₂ Tablet	Daily as per water requirement	**1.0g tablet/2000 litre of water
	SAFEGARD		1 ml/10litre of water
Foot Dip	SAFEGARD	Daily	8-10ml/litre of water

### Layer:

Process	Solution	Use	Dose
Cleaning	UBC	Floor Cleaning	*2-20ml/litre of wate
	AQUAMAX	Flushing of nipple line / Equipment cleaning	20ml/litre of water
Continuous Disinfection : (0 - 8 Weeks)	B-904	"Weekly aerial spray inside the shed	4ml/litre of water
(9-80 weeks)	B-904	"Aerial spray inside the shed (once in two weeks)	4ml/litre of water
	BIO-BUSTER	"Aerial spray inside the shed (once in two weeks)	5g/litre of water
Water Sanitation	BVClO <sub>2</sub> Tablet	Daily as per water requirement	**10g tablet/2000 litre of water
water samtation	SAFEGARD		1ml/10litre of water
Foot Dip	SAFEGARD	Daily	8-10ml / litre of water
Egg Tray Cleaning	UBC	As per requirement	*2-20ml / litre of water
Feed Mill Disinfection	в-904	Thermal fogging	2 litre B-904 in 3 litre of water

### **Breeder:**

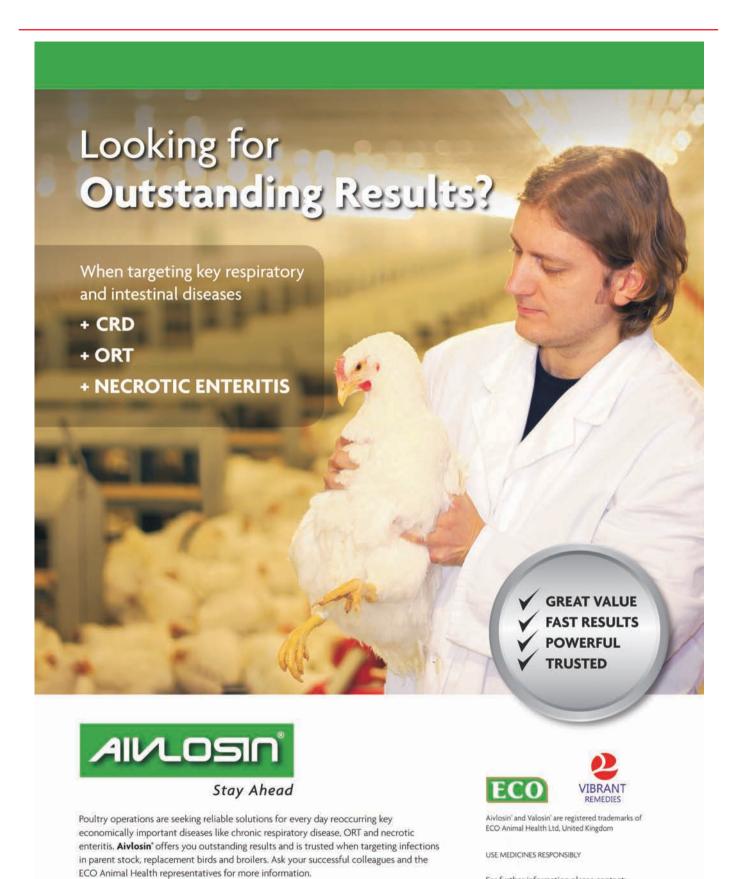
Process	Solution	Use	Dose
Cleaning	UBC	Floor Cleaning	*2-20ml/litre of water
	AQUAMAX	Flushing of nipple line	20ml/litre of water
Continuous Disinfection : (0 - 8 Weeks)	B-904	"Weekly aerial spray inside the shed	4ml/litre of water
(U-6 Weeks)	BIO-BUSTER	*Weekly aerial spray inside the shed	5g/litre of water
	B-904	"Aerial spray inside the shed (once in two weeks)	4ml/litre of water
(9-72 weeks)	BIO-BUSTER	"Aerial spray inside the shed (once in two weeks)	5g/litre of water
Water Sanitation	BVClO <sub>2</sub> Tablet	Daily as per water requirement	**10g tablet/2000 litre of water
water Sanitation	SAFEGARD		1ml/10litre of water
Foot Dip	SAFEGARD	Daily	8-10ml / litre of water
Egg Cleaning	B-904	As per requirement	4ml / litre of water
Cooling Pad	AQUAMAX	As per requirement	20ml / litre of water
Feed Mill Disinfection	B-904	Thermal fogging	2 litre B-904 in 3 litre of water

Note: \*Rate of dilution can be alter depending on level of contamination / dirt

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<sup>\*\*</sup>Dose rate may vary as per quality of water

<sup>#</sup>Frequency of disinfectant spry can be increased depending of threat level



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## Not all Chelated Minerals are same

### **Highlight Points**

Many nutritionists are faced with a plethora of organic mineral choices with not much information on the differences between them. The differences between minerals have different results and therefore it is unrealistic to expect that all organic trace minerals will perform the same. Although chelates, proteinates and complexes are presented as all organic, each of these compounds has its own chemical configurations Competitive forces have driven innovation, which has led to confusion in the market place. This has also led to confusion regarding the term chelate.

### Dr Koushik De

Director-Technical Services, SCA, Novus International

An organic mineral is a combination of a metal ion with an organic molecule called 'ligand' such as amino acids, proteins, polysaccharides, yeast, or organic acids. Specifically, the metal ion is bound to the organic ligand through multiple attachments (either ionic or covalent) with the metal ion occupying a central position in the structure (Kincaid, 1989, Nelson, 1988).

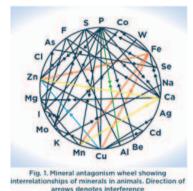
### **Animal Trace Mineral Requirements aren't Static:**

Poultry feeds must be formulated to provide all the necessary animal's mineral nutrient requirements if optimum growth and production is to be achieved. The exact minimum dietary requirement of trace minerals for every animal is though not a given, constant value as it depends on various influencing factors such as genetic developments, age, reproductive state and health of the animals, housing system and management of the farm. Still today, official recommendations of requirements by official Research or Animal Nutrition organizations such as the National Research Council (NRC), CVB (Centraal Veevoeder Bureau) or genetic breeding companies remain under discussion. Some were defined in the 1990s and it can be questioned if they are therefore adapted to modern breeding systems/breeds and production.

To determine the correct inclusion rates for animal feeds to achieve optimum production results, it is vital to consider some factors that influence the needs of the animals. Broilers now have different carcass characteristics and are grown to increasingly large sizes, so a healthy and stable skeletal structure becomes even more important. The increased egg output of modern layer strains means that egg shell quality has become more critical as hens are laying at an earlier age with corresponding reductions in both mature body weight and daily feed intake.

### More is less -interactions and antagonisms:

Due to the simplicity of their molecular structure, trace minerals within inorganic sources are very susceptible to binding with other feed ingredients such as other minerals or more complex molecules like phytate, making them no longer useful for your animals (Fig.1). This results in less mineral supply to effectively support the animal performance. In addition, phytic acid is able



to form complexes with trace minerals that are very stable and highly insoluble, rendering the minerals unavailable absorption. High concentrations of calcium increase the acidmediated phytic antagonism on trace mineral bioavailability. The macro minerals calcium and phosphorus

are antagonistic. Calcium suppresses zinc and manganese availability, while phosphorous is antagonistic with zinc.

ITMs tend to dissociate in the low pH environment of the upper gastrointestinal tract of the bird. When the dissociated trace mineral reaches the more neutral pH of the small intestine, it is susceptible to various nutrient and ingredient antagonisms that impair absorption and thus reduce the bioavailability.



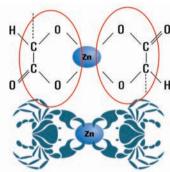
### Not All Organic Trace Minerals (OTM) are same:

The differences between various organic minerals are based on mainly the type of the ligand or organic molecule that attach with the metal and the type of bond between the ligand and the mineral.

In its role as a ligand in MHMTBa chelated trace minerals, HMTBa (2-Hydroxy- 4-MethylThioButanoic acid or the hydroxy analog of methionine), appears to have an advantage over other ligands, such as methionine, proteinates, and carbohydrates, in terms of stability and maximising the availability of trace minerals. The structure of HMTBa-chelated trace minerals has been fully defined by a variety of assays, including X-ray crystallography. HMTBa-chelated trace minerals contain two molecules of HMTBa – chelating one molecule of either zinc (Zn) manganese (Mn), or copper (Cu).

### **Understanding Chelation:**

The word Chelation arrived from the Greek word "Chela" which means "Pincer". When a ligand connects to a metal



(Kratzer F.H., & Vohra P. 1986. Chelates in Nutrition. CRC Press Inc.)

atom at 2+ points, it forms a chelate. To form a stable chelate, multiple ligands need to connect to the metal. If only one ligand connects to the metal, it is technically a "metal complex" rather than a "chelate"

when two five member rings connect to the metal with two points of contact it forms the most stable complex found in nature.

### **Bis-Chelates:**

A bis-chelate has very specific characteristics to ensure that the metal has maximum protection

In addition to have a 2:1 ligand to metal ratio, the most important characteristic is that it must have a neutral charge. Bis Chelates have 2 chelate rings. Bis-chelates are formed when 4 atoms connect to the metal in the center. A mono-chelate does not exists. As previously mentioned, a molecule with only one ligand and a metal is a "metal complex"



### The most stable chelation rings are those formed by hydroxy acids

When the HMTBa-chelated trace mineral molecule reaches the site of mineral absorption in the small intestine, the combined influence of the pH of the unstirred water layer (pH 2) of the intestinal mucosa and the higher binding affinity of the mineral receptor on the intestinal cell membrane breaks the bonds of the molecule, freeing the trace mineral. The free trace mineral and the HMTBa are then absorbed separately across the epithelium of the small intestine for utilisation in the animal.

The HMTBa ligand, a lipophilic organic acid is absorbed

by diffusion or by a carrier system and converted to L-methionine by the animal. Biochemical and growth performance experiments have demonstrated that the HMTBa from HMTBa chelated trace minerals has the same methionine value as unchelated HMTBa. Therefore, in all feed formulations, the trace mineral-HMTBa chelate can replace a portion of the supplemental synthetic methionine.

### Measuring the Bioavailability of OTM:

Intrinsic, extrinsic, and luminal factors can affect mineral bioavailability (Nelson, 1988; Ashmead, 1993). The variable reports of organic mineral bioavailability in animal systems are likely due to interactions among these factors. Tissue mineral experiments often provide useful data in mineral availability, but these experiments measure only a fraction of the mineral that is taken up by the animal. Minerals are absorbed by the small intestine, and then distributed via the bloodstream to other tissues. Therefore, tissue mineral levels only measure the mineral that is distributed to those particular tissues, and as such may not reflect total mineral uptake. The tissue mineral experiments measure only the amount of mineral that has entered into the particular tissue, rather than the total mineral delivered to that particular tissue.

The solution to this problem is to use of biomarkers like Metallothionine (MT) in the animal in the small intestine where minerals are absorbed. Metallothionein's expression is regulated by Zinc status. When zinc is absorbed by a cell, it must be bound up quickly into protein, because free zinc is toxic. The cell therefore responds to zinc uptake up synthesising MT mRNA (as an intermediate) and then MT protein. The MT protein is then able to bind up to 7 zinc atoms, (for Cu its 10) until it is needed by other enzymes in the cell. Research has shown in many tissues from a wide range of species, MT mRNA and protein expression increase when more zinc is taken up, and decrease when less zinc is taken up. Therefore, metallothionein mRNA or protein expression is often used as an indicator of the zinc status of humans and animals and to evaluate the bioavailability of different zinc sources.

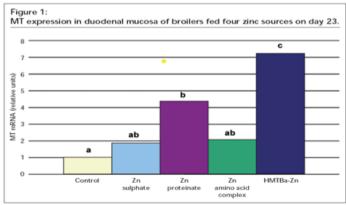
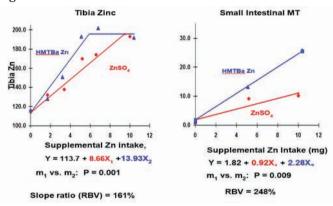


Figure 1 shows an example of using small intestinal metallothionein mRNA expression as an indicator of zinc bioavailability. In this experiment, broilers were fed control diets or diets supplemented with 40 ppm zinc from the indicated sources. Because zinc absorption occurs in the small intestine, differences in metallothionein expression

here would be expected to more closely represent relative bioavailability than tissue zinc levels would. Measuring tissue minerals or mineral dependent biomarkers can be the easiest and most straightforward measures to generate a quantitative estimate of mineral bioavailability.

It seems likely that some OTMs truly will not be more bioavailable than ITMs, due to their inability to stay chelated or complexed in the low pH environment of the upper GI tract. On other occasions, however, true differences in bioavailability could be masked by experimental design. Using tibia zinc content as the measure of bioavailability, indicated that the bioavailability of zinc methionine relative to zinc sulphate ranges from 117% to 206% in broiler chicks, depending on the diet matrix.

Figure 2:



A study of Zn-HMTBa performed (Figure 2) on the linear portions of the dose response curves indicated that the zinc from this source was approximately 160% or 250% as available as the zinc from zinc sulphate, depending on the response variable measured (tibia zinc; or the small intestinal expression of the zinc responsive biomarker, metallothionein; respectively).

### Less is more - reduce and replace

Many people are using 'reduce and replace' – replacing all or some of the ITMs with organic trace minerals (OTMs) to avoid the problem of antagonisms and reduce environmental deposition of trace minerals. A potential advantage of OTMs is that the binding of the organic ligand(s) to the mineral should provide stability of the complex in the upper gastrointestinal system, thereby minimising mineral losses to antagonists and allowing the complex to be delivered to the receptor sites of the small intestine for improved mineral uptake.

### **Summary:**

Only by truly understanding the structure and consistency of a given OTM source and by rigorously investigating its bioavailability through a variety of methods you can be assured of the predictability and consistency of the animal's responses to OTM supplementation. With new research and extensive commercial experience proving the superior bioavailability of HMTBa chelated trace minerals, you can now formulate to reduce overall supplementation of trace minerals, without compromising (and sometimes increasing) performance while reducing excretion into the environment.

The superior bioavailability of HMTBa-chelated trace minerals helps producers and nutritionists address key production challenges including gut health, nutrition, structural integrity and protection against oxidative stress, which contribute to better control of wet litter syndrome, bone and egg shell strength and footpad dermatitis.

Considering the risk of mineral loss, combined with the profits you might be throwing away, the value is clear. You can't afford not to re-evaluate your current program and consider the alternative solutions that chelated trace minerals provide.

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## Safe anti bacterial solutions for poultry can radically reduce need of antibiotics

Dr Bhushan Bhavsar

Managing Director of Herbal Consultants Pvt Ltd

Between reducing the use of antibiotics and dealing with rampant bacterial infections of poultry, there is need to create safe prevention solutions, writes, Managing Director

### - Vetphage Pharmaceuticals Pvt. Ltd.

The poultry sector in India was valued at an estimated Rs. 80,000 crores in 2015-16. Thanks to increasing income and changing food habits, the demand for poultry meat as well as eggs is expected to grow steadily. The poultry meat production in the country stood at around 3.46 million tons in 2016-17, up from 3.26 million tonnes during the previous year. Similarly, the egg production also grew by around 6% during the same period. Notably, more than 80 per cent of India's poultry output is produced by organized commercial farms, while the remaining 20% comes from the unorganized sector often referred to as the backyard industry.

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### **Highlight Points**

Dr Bhushan emphasis, with the problem of antibiotic resistance emerging as a major healthcare concern, focus has in recent years shifted to the need for devising solutions to reduce antibiotic usage among poultry. Notably, estimates suggest that 70% of all antibiotics used, are used in animal farming, while only 30% are used directly in humans. Farmers and veterinarians are compelled to use antibiotics frequently due to lack of effective and safe alternatives that can prevent the disease from developing in the first place. The entry of such high levels of antibiotics in our food chain has far reaching consequences on human and environmental health. A new preventive antibacterial solution introduced which has the potential to revolutionize poultry farming by drastically reducing the need for antibiotics. The era of sustainable poultry farming is here to stay.

The growing consumption and production of poultry on commercial scale elicits a series of health and environmental concerns. Among them are concerns over bacterial disease as well as the disposal of infected birds. Prevention of diseases and ensuring healthy growth of chicken also remain significant concerns before farmers.

### Bacterial diseases cause huge losses for poultry industry

Bacterial disease causes multi-billion-dollar economic losses for the livestock industry. It is estimated that Campylobacter and Salmonella infections that are rampant in poultry together account for 9 in 10 reported cases of bacteria-related food poisonings globally. There exist more than 2,000 species of bacteria belonging to Salmonella genus, with almost all of them being potential pathogens of poultry. In fact, a study conducted on eggs in several retail outlets in India found that large amounts of salmonella were present both on the shell and inside the egg. Coliform infections or diseases resulting from Escherichia coli bacteria are another significant health concern recognized as a major cause of morbidity and mortality in chickens. Often, mass culling's are necessitated to curb such infections causing huge losses to the industry. The disposal of the culled birds which is often done through mass burials further leads to concerns of environmental degradation as water bodies and soil stands to be polluted.

To treat such diseases, poultry farmers are forced to use significant amounts of anti-microbials and other veterinary drugs and feed additives which together have negative implications on human and environmental health.

### Growing threat of antibiotic resistance

Estimates suggest that 70% of all antibiotics used are used in animal farming, while only 30% are used directly in humans. In the absence of effective and safe alternatives that can prevent the disease, antibiotics are used to treat diseases and prevent disease among chicken. The entry of antibiotics in our food chain has far reaching consequences on human and environmental health.

Taking note of the global threat of antibiotic resistance, the non-therapeutic use of antibiotics in animal production has been banned in many countries. Sweden was the first country to ban the use of antimicrobials for non-therapeutic uses in the late 1980s. Denmark, the Netherlands, United Kingdom and other European Union countries have also followed suit. Recently, the Indian government has also banned the manufacture, sale and distribution of antibiotic Colistin (often considered a 'last hope' antibiotic) for poultry and animal feed supplements to preserve its efficacy in humans.

### Need for safe alternatives

However, it is important to underline that banning the non-therapeutic use of antibiotics is not enough. We also need to devise solutions to help farmers grow healthy poultry and prevent bacterial infections through natural mechanisms. Interestingly, using bacteriophage-based preventive solutions is emerging as a sustainable and healthy alternative for disease prevention in poultry. Bacteriophages or simply known as 'phages' are microorganisms that are a natural element of our environment and exist everywhere around us including in the gut. Phages eliminate or devour their selected bacteria in a natural way without interacting with animal or human cells. This makes them absolutely safe for poultry and human beings.

Poland-based biotechnology company Proteon Pharmaceuticals has pioneered a revolutionary approach to use phages in a sustainable and controlled way to eliminate pathogenic bacteria without causing any harm to the microbiome or gut flora of the birds. By promoting healthy growth of birds, this significantly reduces the need for use of antibiotics. They help to reduce pathogenic bacteria without side effects, without leaving any residue and without creating antibiotic resistant strains of bacteria.

Creating and popularizing such sustainable solutions is key to the overall health of poultry and human beings. It is also important that adequate awareness is raised among farmers about following correct disease management and control practices and end reckless use of antimicrobials.

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Immunostimulant Effect results in Strong Body Defense System and Protect the Bird from Immunosuppresive Diseases



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