**Rumen Bypass Protein**  
(*Rumen Protected Protein Meal*)

**Rumen Bypass Fat**  
(*Calcium soaps/salts of long chain fatty acids*)

**Mineral Mixture For Dairy Animals**  
(*Highly Bio-available Minerals for Animals feeding only*)

**Di Calcium Phosphate (DCP) Dihydrate**  
(*Animal Feed Grade*)

**PRESERVO**  *Toxin Binder*

**INNOSWEET**  *Sweetener*

**PROFAT**  *Feed Supplement For Dairy Animals*

**INNOVIT AD3E 100:40:40 Oral Liquid Water Miscible Vitamin Supplement**

**INNOVIT E+ Selenium Oral Liquid Water Miscible Vitamin Supplement**

**INNOVIT AD3B 12 Oral Liquid Water Miscible Vitamin Supplement**

**LIQUID CALCIUM**  *Feed Supplement for Animal Feeding*

---

**S. A. Pharmachem Pvt. Ltd.**  
*ANIMAL NUTRITION DIVISION*

Correspondence Address:  
302, Sanket Heights, Nr. Akshar Chouk, Sun Pharma Road, Vadodara : 390020, Gujarat (INDIA)  
Tel: 93286 71702  
Email: sales.innofeed@sapharmachem.com  
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Our chicken is so fresh and tender that your family will enjoy the taste of every dish you make. And because we raise it on our farms without using antibiotics or hormones, it’s healthy and safe.

Choose Nandus. Choose meat you and your family will love.

Nandus Safe-Meat Promise
Zero Antibiotics | Zero Growth Promoters
BRIGHTER FARMING
with High Quality Life Cycle Brands

GODREJ ANIMAL FEEDS
Healthy Livestock, Wealthy Families.

CATTLE FEED BRANDS
Premium quality cattle feed for better growth, overall health and well-being of the cattle.

LAYER FEED BRANDS
In full feed and concentrate form to improve egg production at lesser cost

BROILER FEED BRANDS
Premium quality feeds to improve FCR

For further details, please write to: Animal Feed, Marketing Department,
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Eastern Express Highway, Vikhroli (East), Mumbai – 400 079
Email: afcustomercare@godrejagrovet.com • Website: www.godrejagrovet.com

For more details, scan the QR or WhatsApp us on 9738380000.
Dear Friends,

Greetings!

Wish you all a very Happy, Healthy & Wealthy New Year 2024!

In the third quarter, October to December 2023, CLFMA was fully focused on the activities related to the upliftment of Livestock sector.

CLFMA OF INDIA significantly enhanced its engagement with diverse stakeholders viz Industry, academicians, bureaucrats from the relevant ministries, embassies from different countries etc. by our participation in the events covered in CLFMA Activity updates.

I would like to take this opportunity to brief you on CLFMA activities, which have been mentioned under the heading “CLFMA Activity Updates” in this magazine. To list a few, CLFMA supported 7th edition of the Feed Tech Expo scheduled on 27th - 29th October, 2023 at Auto Cluster Exhibition Centre, Pune. CLFMA scheduled a half-day conference on “Evolving feed ingredients: DDGS & Insect Meal” during the event on October 28, 2023 from 14:30 hrs. to 17:00 hrs. CLFMA Submitted its input for the Budget Proposal for the year 2024-2025 i.e. suggestion for the growth of Indian Fisheries Sector on 17th November, 2023. CLFMA OF INDIA participated in Global Fisheries Conference India 2023 on 21st and 22nd November, 2023 organized by the Department of Fisheries, Ministry of Fisheries, Animal Husbandry and Dairying, Government of India in association with the Department of Fisheries, Government of Gujarat. An exhibition and conference organized during the event. CLFMA OF INDIA attended Poultry India 2023 exhibition scheduled on 22nd to 24th November, 2023 at HITEX Exhibition Centre Hyderabad. CLFMA had stalls at both events and had a very good response. CLFMA OF INDIA’s participated in the U.S. Grains Council’s Virtual Seminar on “South Asia Corn Quality Rollout and Feed Quality” dated 20th December, 2023 from 14:00 hrs. to 17:15 hrs.

Your timely words of appreciation, active and wholehearted support, and encouragement from time to time have been a source of inspiration for me to drive CLFMA in the right direction.

We would be grateful for your feedback or input anytime for our improvement.

With warm regards,
For CLFMA OF INDIA,

Suresh Deora
Chairman

LIVESTOCK & FEED TRENDS
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* website : www.clfma.org
* E-mail : admin@clfma.org

LIVESTOCK & FEED TRENDS
## 1. Domestic Prices

### I. Maize

#### Maize Prices

![Maize Prices Chart](source: agmarknet.gov.in)

#### Maize Prices (INR Quintal)

<table>
<thead>
<tr>
<th>City</th>
<th>31/12/2023</th>
<th>30/11/2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mumbai</td>
<td>3,800</td>
<td>3,800</td>
</tr>
<tr>
<td>Ghaziabad</td>
<td>2,250</td>
<td>2,250</td>
</tr>
<tr>
<td>Coimbatore</td>
<td>2,320</td>
<td>2,320</td>
</tr>
</tbody>
</table>

### II. Soybean

#### Soybean Seed (INR/Qt)-NCDEX Spot

![Soybean Seed Chart](source: agmarknet.gov.in)
### Soybean Complex Prices NCDEX Spot

<table>
<thead>
<tr>
<th>Commodity (Unit)</th>
<th>31/12/2023</th>
<th>30/11/2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soybean Seed (in INR/Qtl)</td>
<td>4,886</td>
<td>5,144</td>
</tr>
<tr>
<td>Ref. Soya Oil (in INR/10kg)</td>
<td>868</td>
<td>950</td>
</tr>
<tr>
<td>Soymeal (in INR/MT)</td>
<td>46,500</td>
<td>47,880</td>
</tr>
</tbody>
</table>

### Ref Soya Oil

**Ref. Soya Oil (in INR/10kg) - NCDEX Spot**

### Soymeal

**Soymeal (in INR/MT) - NCDEX Spot**
III. Egg Rates

Egg Prices (INR/100 NOs) - NECC

<table>
<thead>
<tr>
<th>Name of Zone</th>
<th>31/12/2023</th>
<th>30/11/2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ahmedabad</td>
<td>633</td>
<td>575</td>
</tr>
<tr>
<td>Ajmer</td>
<td>620</td>
<td>551</td>
</tr>
<tr>
<td>Barwala</td>
<td>606</td>
<td>541</td>
</tr>
<tr>
<td>Bengaluru (CC)</td>
<td>610</td>
<td>550</td>
</tr>
<tr>
<td>Brahmapur (OD)</td>
<td>610</td>
<td>548</td>
</tr>
<tr>
<td>Chennai (CC)</td>
<td>615</td>
<td>560</td>
</tr>
<tr>
<td>Chittoor</td>
<td>608</td>
<td>553</td>
</tr>
<tr>
<td>Delhi (CC)</td>
<td>645</td>
<td>564</td>
</tr>
<tr>
<td>E.Godavari</td>
<td>580</td>
<td>530</td>
</tr>
<tr>
<td>Hospet</td>
<td>570</td>
<td>510</td>
</tr>
<tr>
<td>Hyderabad</td>
<td>576</td>
<td>525</td>
</tr>
<tr>
<td>Jabalpur</td>
<td>600</td>
<td>551</td>
</tr>
<tr>
<td>Kolkata (WB)</td>
<td>630</td>
<td>580</td>
</tr>
<tr>
<td>Ludhiana</td>
<td>610</td>
<td>540</td>
</tr>
<tr>
<td>Mumbai (CC)</td>
<td>645</td>
<td>590</td>
</tr>
<tr>
<td>Mysuru</td>
<td>610</td>
<td>550</td>
</tr>
<tr>
<td>Namakkal</td>
<td>560</td>
<td>510</td>
</tr>
<tr>
<td>Pune</td>
<td>650</td>
<td>585</td>
</tr>
<tr>
<td>Raipur</td>
<td>600</td>
<td>540</td>
</tr>
<tr>
<td>Surat</td>
<td>638</td>
<td>580</td>
</tr>
<tr>
<td>Vijayawada</td>
<td>580</td>
<td>530</td>
</tr>
<tr>
<td>Vizag</td>
<td>625</td>
<td>530</td>
</tr>
<tr>
<td>W.Godavari</td>
<td>580</td>
<td>530</td>
</tr>
<tr>
<td>Warangal</td>
<td>578</td>
<td>527</td>
</tr>
</tbody>
</table>
## III. Egg Rates

<table>
<thead>
<tr>
<th>EGG PRICES (INR/100 NOs)</th>
<th>31/12/2023</th>
<th>30/11/2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Zone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allahabad (CC)</td>
<td>667</td>
<td>581</td>
</tr>
<tr>
<td>Bhopal</td>
<td>615</td>
<td>560</td>
</tr>
<tr>
<td>Indore (CC)</td>
<td>610</td>
<td>555</td>
</tr>
<tr>
<td>Kanpur (CC)</td>
<td>652</td>
<td>586</td>
</tr>
<tr>
<td>Lucknow (CC)</td>
<td>683</td>
<td>600</td>
</tr>
<tr>
<td>Muzaffurpur (CC)</td>
<td>667</td>
<td>603</td>
</tr>
<tr>
<td>Nagpur</td>
<td>610</td>
<td>565</td>
</tr>
<tr>
<td>Patna</td>
<td>667</td>
<td>603</td>
</tr>
<tr>
<td>Ranchi (CC)</td>
<td>657</td>
<td>595</td>
</tr>
<tr>
<td>Varanasi (CC)</td>
<td>667</td>
<td>600</td>
</tr>
</tbody>
</table>

Source: NECC

## IV. Broiler Rates

### Broiler Rates (INR/Kg)

![Graph showing Broiler Rates (INR/Kg)]

### BROILER RATES (INR/Kg)

<table>
<thead>
<tr>
<th>Location</th>
<th>31/12/2023</th>
<th>30/11/2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delhi</td>
<td>100</td>
<td>82</td>
</tr>
<tr>
<td>Punjab</td>
<td>92</td>
<td>76</td>
</tr>
<tr>
<td>Raipur</td>
<td>80</td>
<td>68</td>
</tr>
<tr>
<td>Pune</td>
<td>89</td>
<td>83</td>
</tr>
<tr>
<td>Bengaluru</td>
<td>98</td>
<td>69</td>
</tr>
<tr>
<td>Hyderabad</td>
<td>110</td>
<td>86</td>
</tr>
<tr>
<td>Guwahati</td>
<td>75</td>
<td>74</td>
</tr>
<tr>
<td>Kolkata</td>
<td>104</td>
<td>89</td>
</tr>
<tr>
<td>Bihar</td>
<td>84</td>
<td>79</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>101</td>
<td>67</td>
</tr>
<tr>
<td>Lucknow</td>
<td>88</td>
<td>78</td>
</tr>
</tbody>
</table>

Source: SRP (Wholesale Rates)
Taste success with our wide range of snacks

We bring quality pre-cuts to the table

For Business Enquiry email consumerservice@godrejagrovet.com
SECURE YOUR BUSINESS WITH POULTRY FEED YOU CAN TRUST

Made with superior ingredients and using world class technology, Nouriture offers:

- Highly digestible, ideally balanced for protein and energy
- Better FCR, higher profits
- Great value for money

Also get farm level assistance to help your business flourish.
## Day old Chicks Price

<table>
<thead>
<tr>
<th>State</th>
<th>31/12/2023</th>
<th>30/11/2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Punjab</td>
<td>29</td>
<td>24</td>
</tr>
<tr>
<td>Dehradun</td>
<td>29</td>
<td>26</td>
</tr>
<tr>
<td>Haryana</td>
<td>29</td>
<td>24</td>
</tr>
<tr>
<td>Himachal Pradesh</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td>Jammu</td>
<td>31</td>
<td>25</td>
</tr>
<tr>
<td>Andhra Pradesh</td>
<td>20</td>
<td>27</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>30</td>
<td>26</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>21</td>
<td>26</td>
</tr>
<tr>
<td>Telangana</td>
<td>20</td>
<td>27</td>
</tr>
<tr>
<td>Bihar</td>
<td>31</td>
<td>30</td>
</tr>
<tr>
<td>Jharkhand</td>
<td>31</td>
<td>30</td>
</tr>
<tr>
<td>Gujarat</td>
<td>21</td>
<td>26</td>
</tr>
</tbody>
</table>

Source: Poultry India TV/ SRP

![Day old Chicks Price Graph](image)
# VI. Fish Prices

<table>
<thead>
<tr>
<th>Fish Type</th>
<th>31/1 2/2023</th>
<th>30/11/2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bala Putti</td>
<td>8,500</td>
<td>10,000</td>
</tr>
<tr>
<td>Black Dom</td>
<td>12,000</td>
<td>16,000</td>
</tr>
<tr>
<td>Blue Dom</td>
<td>13,500</td>
<td>15,000</td>
</tr>
<tr>
<td>Chilwa</td>
<td>9,000</td>
<td>22,000</td>
</tr>
<tr>
<td>Halwa</td>
<td>26,000</td>
<td>28,000</td>
</tr>
<tr>
<td>Hilsa</td>
<td>52,500</td>
<td>58,000</td>
</tr>
<tr>
<td>Kalla (Small)</td>
<td>17,500</td>
<td>13,000</td>
</tr>
<tr>
<td>Malii (Big)</td>
<td>21,500</td>
<td>26,000</td>
</tr>
<tr>
<td>Malii (Small)</td>
<td>16,500</td>
<td>19,000</td>
</tr>
<tr>
<td>Pangass</td>
<td>7,500</td>
<td>8,500</td>
</tr>
<tr>
<td>Kalla (Big)</td>
<td>17,500</td>
<td>21,500</td>
</tr>
<tr>
<td>Singhra (Big)</td>
<td>22,500</td>
<td>26,000</td>
</tr>
<tr>
<td>Singhra (Small)</td>
<td>12,500</td>
<td>14,000</td>
</tr>
<tr>
<td>Surmali (Small)</td>
<td>32,500</td>
<td>33,000</td>
</tr>
<tr>
<td>Surmai (Big)</td>
<td>47,500</td>
<td>46,000</td>
</tr>
<tr>
<td>Sol</td>
<td>25,000</td>
<td>33,000</td>
</tr>
<tr>
<td>Soli</td>
<td>15,000</td>
<td>28,000</td>
</tr>
<tr>
<td>White Dom</td>
<td>13,000</td>
<td>14,000</td>
</tr>
<tr>
<td>Rahu (Andhra)</td>
<td>11,500</td>
<td>14,000</td>
</tr>
<tr>
<td>Zinga (Zambo-A)</td>
<td>52,500</td>
<td>53,000</td>
</tr>
<tr>
<td>Zinga (Zambo-B)</td>
<td>45,000</td>
<td>47,000</td>
</tr>
<tr>
<td>Zinga (Zambo-C)</td>
<td>35,000</td>
<td>41,000</td>
</tr>
</tbody>
</table>

Source: agmarknet.gov.in
The Prices are of Delhi (Gazipur Mandi)
2. Global Commodity Prices

<table>
<thead>
<tr>
<th>Commodity (Unit)</th>
<th>PRICE (31/12/2023)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk (USD/CWT)</td>
<td>16.11</td>
</tr>
<tr>
<td>Rapeseed (Euro/Ton)</td>
<td>438.0</td>
</tr>
<tr>
<td>Soybean Meal (USD/Ton)</td>
<td>386.0</td>
</tr>
<tr>
<td>Soybean Oil (USD/lb)</td>
<td>0.48</td>
</tr>
<tr>
<td>Live Cattle (USD/Lbs)</td>
<td>1.74</td>
</tr>
<tr>
<td>Poultry (USD/Kgs)*</td>
<td>1.51</td>
</tr>
<tr>
<td>Eggs US (USD/Dozen)</td>
<td>2.19</td>
</tr>
</tbody>
</table>

Source: tradingeconomics; markets.businessinsider
USD: United States Dollar
CWT: Short Hundredweight
Lbs: Pounds
1 BRL (Brazilian Real) = 0.20 USD

*Poultry price refers to the cost of the chicken in the wholesale market of São Paulo, Brazil. The price is converted above conversion rate.
2. Global Commodity Prices

**Soybean Meal (USD/Ton)**

![Soybean Meal Graph](image)

**Poultry (USD/Kg)**

![Poultry Graph](image)
We strive to **sustainably transform** the **quality of life** every day for **80% of the world** with our products and services.
Take a giant leap in **performance** and **intestinal health security** of chicken with the first ever novel probiotic strain—*Bacillus siamensis ZMT02*

- **>100 g** improvement in BWT over control
- **>45 g** improvement in BWT over existing formulation and competition
- **100 units** improvement in FCR over control
- **40 units** improvement in FCR over existing formulation and competition
- **>30%** improvement in liveability over control

**ZMT02 strain**

**Key advantages**

---

*The indicated performance improvement refers to the data generated in controlled field trial involving male birds (Vencobb 430Y) in an experiment lasting for 35 days.*

---

**THE KEY TO TOTAL GUT INTEGRITY**

---

The key to total gut integrity
3. Trade Details

**India: Maize Export**

![Maize Export from India](image)

Source: Ministry of Commerce and Industry, HS Code 005

**India: Maize Import**

![Maize Import to India](image)

Source: Ministry of Commerce and Industry, HS Code 005

Note: This Data is sourced from the Ministry of Commerce and Industry, which was last updated in October.
India: Soy Meal Export

Soy Meal Export (in U$ Million)

<table>
<thead>
<tr>
<th></th>
<th>2022</th>
<th>2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>55.62</td>
<td>50.43</td>
</tr>
<tr>
<td>Feb</td>
<td>11.46</td>
<td>177.67</td>
</tr>
<tr>
<td>Mar</td>
<td>7.15</td>
<td>140.05</td>
</tr>
<tr>
<td>Apr</td>
<td>4.78</td>
<td>86.09</td>
</tr>
<tr>
<td>May</td>
<td>4.16</td>
<td>46.19</td>
</tr>
<tr>
<td>Jun</td>
<td>6.16</td>
<td>30.41</td>
</tr>
<tr>
<td>Jul</td>
<td>5.9</td>
<td>25.35</td>
</tr>
<tr>
<td>Aug</td>
<td>5.48</td>
<td>25.02</td>
</tr>
<tr>
<td>Sep</td>
<td>4.79</td>
<td>52.68</td>
</tr>
<tr>
<td>Oct</td>
<td>12.1</td>
<td>35.71</td>
</tr>
<tr>
<td>Nov</td>
<td>56.34</td>
<td></td>
</tr>
<tr>
<td>Dec</td>
<td>101.33</td>
<td></td>
</tr>
</tbody>
</table>

Source: Ministry of Commerce and Industry, HS Code 30400030

India: Soy Meal Import

Soy Meal Import (in U$ Million)

<table>
<thead>
<tr>
<th></th>
<th>2022</th>
<th>2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>32.35</td>
<td>0.36</td>
</tr>
<tr>
<td>Feb</td>
<td>5.37</td>
<td>0.15</td>
</tr>
<tr>
<td>Mar</td>
<td>0.22</td>
<td>1.21</td>
</tr>
<tr>
<td>Apr</td>
<td>0.39</td>
<td>0.17</td>
</tr>
<tr>
<td>May</td>
<td>43.92</td>
<td>0.17</td>
</tr>
<tr>
<td>Jun</td>
<td>53.34</td>
<td>1.84</td>
</tr>
<tr>
<td>Jul</td>
<td>0.05</td>
<td>9.55</td>
</tr>
<tr>
<td>Aug</td>
<td>4.39</td>
<td>1.85</td>
</tr>
<tr>
<td>Sep</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>Oct</td>
<td>0.47</td>
<td></td>
</tr>
<tr>
<td>Nov</td>
<td>0.15</td>
<td></td>
</tr>
<tr>
<td>Dec</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Ministry of Commerce and Industry, HS Code 30400030

Note: This Data is sourced from the Ministry of Commerce and Industry, which was last updated in October.
## 5. Market Drivers

### Maize

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### Poultry

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<td>Increasing the Demand of Organic Poultry Farming</td>
<td>Bullish</td>
</tr>
</tbody>
</table>

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Regards,
CLFMA OF INDIA
111, Mittal Chamber, 11th Floor,
Nariman Point, Mumbai - 400 021, INDIA
Telephone: +91-22-22026103

Sourced by: IMARC Group
Meeting:
Dr. Satendra Arya, CEO, ASCI scheduled a zoom meeting on 2nd October, 2023 at 11:30 am to discuss about CLFMA- ASCI Collaboration. Mr. Suresh Deora, Chairman of CLFMA OF INDIA attended the same.

Ms. Alexandra de Athayde, Executive Director of IFIF and Daniela Battaglia, Animal Production and Health Division, Food and Agriculture Organization of the United Nations sent an invitation email on 6th October, 2023 to CLFMA Chairman Mr. Suresh Deora for his valuable presence at the IFIF FAO Annual Meeting 2023, which would be held in Rome on 16th and 17th November, 2023 and made a request to present the key feed industry issues in India during General Session 5 on 17th November 2023 at 9:00 to 10:00 CEST.

CLFMA OF INDIA’s Chairman, Mr. Suresh Deora along with Mr. Abbhay Shah, Hon. Secretary, CLFMA & Mr. Divya Kumar Gulati, Dy. Chairman, CLFMA & Dr. Anup Kalra President – North Zone, presented the CLFMA Survey Report Vol. II, Symposium Report and Press Coverage Report to Shri. Parshottam Rupala, Hon’ble Minister of Fisheries, Animal Husbandry and Dairying, GOI, Dr. O. P. Chaudhary, Joint Secretary (NLM/PC), Department of Animal Husbandry & Dairying, Ministry of Fisheries, Animal Husbandry & Dairying, GOI, and Shri G. N. Singh, Joint Secretary (Admin/Trade/GC/IC), Dept. of Ministry of Fisheries, Animal Husbandry & Dairying, GOI on October 18, 2023.

CLFMA OF INDIA nominated Chairman, Mr. Suresh Deora for the working group – Ethanol from Maize by sending an email to Ms. Ani Bency Jacob, GOI, New Delhi on 18th October 2023.

CLFMA got an email from Dr. Gunamaya Patra, Fisheries Research Investigation Officer, Department of Fisheries, Ministry of Fisheries, Animal Husbandry and Dairying on 23rd October 2023 for attending the virtual meeting in connection with World Fishery Day, 2023 under the Chairmanship of Joint Secretary (Marine Fisheries), Department of Fisheries, GOI, on the same day evening. CLFMA Treasurer, Mr. Nissar F. Mohammed attended the same. It was discussed in the meeting that there would be an Exhibition and Conference on 21st and 22nd November, 2023 at Science City, Ahmedabad, Gujarat on “World Fisheries Day 2023”. The Government of India will financially assist this program.

CLFMA has received a letter from the Commissionerate of Animal Husbandry, Aundh, Pune on 31st October, 2023 for attending the animal-bird feed quality co-ordination committee meeting scheduled on 8th November, 2023 at 11:30 am at the Govardhan Hall, Commissionerate of Animal Husbandry, Aundh, Pune. CLFMA Member, Dr. Sandip Sankpal, Regional Nutritionist (West Zone), Godrej Agrovet Limited, Pune, Maharashtra will represent CLFMA for the aforesaid meeting.

Feed Tech Expo 2023:
CLFMA extended official support to the upcoming 7th edition of the FEED TECH EXPO scheduled on 27th - 29th October, 2023 at Auto Cluster Exhibition Centre, Pune. A half-day conference on “Evolving feed ingredients: DDGS & Insect Meal” was organized during the event on October 28, 2023 from 14:30 hrs. to 17:00 hrs. Executive Director Ms. Chandrika Venkatesh & CLFMA Secretariat Team along with CLFMA Office Bearers Mr. Suresh Deora, Chairman, Mr. Divya Kumar Gulati, Dy. Chairman, Mr. Naveen Kumar Pasuparthi, Dy. Chairman, Mr. Sandeep Kumar Singh, Dy. Chairman, Mr. Abbhay Shah, Hon. Secretary, Mr. Nissar Mohammed, Treasurer, Dr. Devender Hoda, North Zone Presidents I, Dr. Dinesh Bhosale, Mr. S. V. Bhave, Past Chairman, and other CLFMA Members Mr. Jaison John, Dr. Vijay Makhija, Mr. Nitin Mane, Mr. Sandeep Karkhanis, etc. attended the event. CLFMA Chairman, Mr. Suresh Deora was invited as a “Special Invitee” for the said event.

The hybrid edition of Feed Tech Expo along with roundtable conferences and workshops was an ideal platform to interact and network with Feed professionals across the complete value chain starting from feed raw materials to nutrition and health, storage, feed safety, and feed milling. The three-day event was planned with various conferences and workshops which attracted trade visitors from Maharashtra, neighbouring states like Gujarat, MP, Chhattisgarh, and also from South India. CLFMA supported the event and got a very good response in the CLFMA stall. Almost 100 visitors visited the CLFMA Booth.
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2) Mineral mixes

SPECIFICATIONS
(1) Moisture content 7.0% Max
(2) Phosphorous as “P” (Total) 16.6-18.3%
(3) P2O5 (Total) 38-41%
(4) Calcium as CA 23.0% Min
(5) Acid insoluble ash 1.0% Max.
(6) Flourine as F 0.2% Max.

N.B.: The contents for item (2) to (6) are on moisture-free basis.

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Meeting with Mr. Clay Hamilton on Friday, November 3, 2023

USSEC conducted a successful welcome reception at the Mr. Clay Hamilton’s place for Mr. Clay Hamilton, Minister Counsellor and Ms. Joana Brown, Ag Attache, At 14-B Amrita Shergill Marg, New Delhi – 110003 on Friday, November 3, 2023 from 6:30 p.m. until 8:30 p.m. The event started with a Welcome note from Jaison John, Team Lead-India for USSEC and CLFMA Managing Committee Member, then introductory speech by Minister Counsellor Clay Hamilton and formally completed with the speech of His Excellency Mr. Eric Garcetti. He has gracefully communicated with guests and mentioned the growing relationship between the US and India and its relevance in today’s environments. He urged people to come closer and work for the betterment of both society from the US and India. He gives the example of Frozen exports from India and imports of tree nuts from the US. These collaborations will smoothen the road map for a more enormous tie-up. CLFMA OF INDIA’s Chairman Mr. Suresh Deora attended the welcome reception. The welcome reception was followed by dinner, the industry was represented by the Edible oil Industry, MNC’s, Soy food industry, feed industry, CLFMA OF INDIA, the Association of Livestock Industry and PFI.

Global Fisheries Conference India 2023 held on 21st and 22nd November, 2023 at Gujarat Science City, Hbatpur, Ahmedabad:

Global Fisheries Conference India 2023 held on 21st and 22nd November, 2023 organized by Department of Fisheries, Ministry of Fisheries, Animal Husbandry and Dairying, GOI in association with Department of Fisheries, Government of Gujarat successfully concluded on 22nd November, 2023 at Gujarat Science City, Hbatpur, Ahmedabad with a call for more technological innovations and adoption to boost technology innovation and adoption key for boosting start-up and entrepreneurial ecosystem in the fisheries sector.

World fisheries Day is celebrated each year on 21st November to highlight the importance of sustainable and responsible harnessing and managing marine and inland fisheries resources. With an unwavering commitment to the persistent growth of this vital sector, the Global Fisheries Conference offered a unique platform for various value chain players (fishers, fish farmers, FFPOs, SHGs, input suppliers, processors, marketers, etc.), policy-makers, researchers, academicians, sector experts, and enthusiasts to chart the course for the future.

Conference inaugurated in presence of Hon’ble Union Minister of Fisheries, Animal Husbandry, and Dairy, Shri. Parshottam Rupala at Science City, Hbatpur, Ahmedabad. The two-day conference was attended by more than 5,000 participants related to fisheries from across the globe. Ministers of State for Fisheries, Dr. Sanjeev Balyan, and Dr. L. Murugan, along with Minister of Agriculture, Animal Husbandry, Cow Breeding, and Fisheries, Shri. Raghavjibhai Patel, graced the occasion with their encouraging presence. The Gujarat government, under the Prime Minister’s Gati Shakti Scheme, launched the Inland Reservoir Lease Portal and declared the Ghol fish as the 'State Fish' for inland fisheries.

Hon’ble Union Minister for Fisheries, Animal Husbandry & Dairying Shri. Parshottam Rupala thanked the Government of Gujarat for extending support in organising the event at Ahmedabad in an exceptional way. He also conveyed thanks to the fishermen community and other delegates for their participation in the conference. Hon’ble Union Minister Shri. Parshottam Rupala said this is the first time the Department of Fisheries, GOI, has organised the Global Fisheries Conference bringing together foreign delegations, international organisations, Entrepreneurs, Association and other stakeholders. The two-day conference witnessed an impressive footfall of over 14,000 physical and virtual participants and brought together a diverse array of dignitaries and stakeholders including state fisheries ministers, ambassadors and diplomatic delegations from different nations, global fisheries scientists, policymakers, fisheries communities, and investment bankers. The conference featured a comprehensive agenda, comprising five technical sessions, five industry connections, and five Government-to-Government (G2G), Government-to-Business (G2B) and Business-to-Business (B2B) sessions.

An exhibition was organised during the conference that featured the participation of start-ups, fishermen, food stalls, demonstration of aquariums, Artificial reefs, Seaweed Cultivation, capture fisheries, marine cage culture, biofloc, RAS, fish feed, LPG converter kits, pearl extraction and nucleus implantation, model of Setcom satellite terminals communication system, eco-friendly movable kiosks, multi-species hatchery, etc. As the event successfully concluded,
participants in physical and online modes made the conference a grand success. CLFMA OF INDIA attended Global Fisheries Conference and Exhibition. CLFMA had two stall E16 and E17. Ms. Shilpa Utekar, Manager CLFMA and Ms. Poonam Mistry, Manager Accounts attended the Global Fisheries Conference and Exhibition 2023.

At the conference, various attractions such as roundtable meetings, technical sessions, industry connect sessions, G2G/G2B and B2B bilateral talks, exhibition stalls, and food fairs have been featured.

Poultry India 2023 Exhibition:

CLFMA OF INDIA attended Poultry India 2023 Exhibition scheduled on 22nd to 24th November, 2023 at HITEC Exhibition Centre, Hyderabad, Telangana, India and CLFMA had a stall Y48 in Hall No. 5. Number of CLFMA Members visited CLFMA Stall during the Exhibition. On 21st November, 2023 the much acclaimed Knowledge Day shed light on various factors that beset the Poultry Industry. More than 1500 delegates from India, Africa, USA and SAARC nations attended the same. Knowledge sharing done on the areas of latest innovations on Breeding, Hygiene, Nutrition, Animal Health, Poultry Equipment and Marketing. The exhibition’s main aim was to help farmers to keep abreast of latest developments in management, animal health and nutrition, breeding, poultry farm equipment and new techniques in feed manufacturing and poultry production at an affordable cost. The need of constant growth of Poultry Sector in Indian Economy is very well emphasized by Poultry India event and
CLFMA UPDATES

appeal is being made to the Government of India for some relief measures for the growth of Poultry Sector.

Poultry India Expo - South Asia's biggest Expo attracted a record 422 Companies from India and 47 Companies from abroad and drew over 30,000 business visitors across 32,500 sqm and 6 exhibition halls at the HITEC venue. Ms. Chandrika Venkatesh, Executive Director, Ms. Shraddha Kadam, Admin Officer & Mr. Dinesh Ambavkar attended Poultry India 2023 Exhibition.
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Stakeholder Outreach:

CLFMA sent a list of Export Promotion Councils in India to GOI on 26th October, 2023.

CLFMA wrote a letter on 27th October, 2023 to Ms. Alka Upadhyaya, IAS, Secretary AHD, Dept of AH &D, Ministry of Fisheries, Animal Husbandry and Dairying, GOI, New Delhi.
on the subject request to consider the release of imported consignments of L-Lysine from China to help our members whose consignment got stuck at the Chennai port.

CLFMA helped to its members by sending a request letter for release of imported consignments of L-Lysine from China on 3rd November 2023 and 14th November, 2023 to Shri. G. N. Singh, JS (Admin/Trade/GC, IC) and 18th November, 2023 to Shri. Dr. Rajeev Singh Raghuvanshi, Drugs Controller General of India (DCGI), New Delhi.

As the Government of India has decided to use Maize as a major feedstock for meeting the E20 blending target of fuel with Bio- Ethanol and in this regard, the Government has given the task to define the BIS standard on Maize DDGS. The Ministry has given the responsibility to IIMR, AIDA, GEMA and CLFMA and in this connection, the Director of ICAR & Indian Institute of Maize Research (ICAR-IIMR) conducted the online meeting on 16th November, 2023 at 12:00 pm through zoom. And for the same, CLFMA OF INDIA nominated Mr. Suresh Deora, Chairman for the discussion on BIS standards for Maize DDGS.

CLFMA Submitted its input for the Budget Proposal for the year 2024-2025 i.e. suggestion for the growth of Indian Fisheries Sector on 17th November, 2023.

CLFMA OF INDIA nominated Mr. Nissar F. Mohammed, Treasurer; CLFMA OF INDIA for creation of the Standardization Cell in the Department of Fisheries, GOI on 27th November, 2023.


CLFMA OF INDIA nominated Dr. R. S. Masali as a Member of the Research Council of MAFSU, Nagpur and sent letter accordingly to Dr. N. V. Kurkure, MAFSU Nagpur on 11th December, 2023.

USSEC hosted CrushCon and Hungercon in Dubai, UAE from December 12-14, 2023. Crushcon focused on the imperative role trade plays in collectively meeting the goal of food and nutrition security. CLFMA OF INDIA actively participated in the said event. Discussions at the event revolved around building the trust creating resilient supply chains, fostering economic growth, implementing sustainability practices and the role US Soybeans play in the global food systems. With a participation of more than 130 industry leaders across the soy value chain from India, Bangladesh, Pakistan, Nepal and Sri Lanka and U.S. the importance of South Asia’s need for meeting its food and nutrition security was highlighted in the event. Esteemed speaker line up included Jim Sutter, CEO USSEC, Stan Born, Chairman USSEC, Kevin Roepeke, Regional director of SAASSA, USSEC, Jack Bobo, Director, Food Systems Institute University of Nottingham, Nottingham, Mac Marshall Marshall, Vice President market Intelligence, United Soybean Board, Takmila Shahid, S&P Global Platts, Mathew Clark Founder, The FeedGuys, Darin Friedricks Founder, Sitonia Consulting and more. On behalf of CLFMA OF INDIA, CLFMA’s Immediate Past Chairman Mr. Neeraj Kumar Srivastava, attended the event as one of the panelists on India Chapter.

On 19th December, 2023, CLFMA wrote a letter to Shri. Parshottam Rupala, Hon’ble Minister of Fisheries, Animal Husbandry & Dairying, Ministry of Fisheries, Animal Husbandry and Dairying, Department of Animal Husbandry and Dairying, GOI and made a humble request to allow duty-free Maize and GM Soya meal import.

CLFMA OF INDIA’s participation in the U.S. Grains Council’s Virtual Seminar on “South Asia Corn Quality Rollout and Feed Quality” dated 20th December, 2023 from 14:00 hrs. to 17:15 hrs.

The U.S. Grains Council’s 2023/2024 Corn Harvest Quality Report was released in December 2023. The Corn Quality Rollout report can be downloaded using the link https://grains.wp-content/uploads/2023/11/2023-24-USGC-Corn-Harvest-Report-compressed.pdf define. USGC New Delhi held a webinar to showcase the findings of the report on 20th December, 2023 from 14:00 hours to 17:15 hours. Opening Remarks delivered by Mr. Clay Hamilton, Agricultural Minister-Counselor, USDA FAS, New Delhi.

The webinar involved about 70 participants from across geographies and industries. The Council not only discussed U.S. corn quality during the virtual seminar, but multiple consultants joined the webinar to discuss feed use trends (including DDGS) in dairy and poultry rations. DDGS was established as a superior feed ingredient that can increase animal performance and health.

The topics included US Corn Harvest Quality Report presented by Mr. Alexander Grabois, Manager of Global
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Attendees of the virtual conference walked away with the following understanding:

1. U.S. corn quality at harvest is very high
2. How U.S. corn moves through the export channel in the U.S.
3. Upcoming supply and demand and what to expect in global corn and animal feed markets
4. What can be contracted when buying U.S. corn and DDGS
5. How DDGS can financially benefit a poultry operation
6. How DDGS can financially benefit a dairy operation
   a. Superiority of DDGS as a dairy feed
7. How to utilize DDGS in aquaculture
   a. Basa, tilapia, and shrimp
8. The superiority of U.S. corn and DDGS vs. competing origins

The information shared was very useful for all stakeholders and the virtual seminar was very well appreciated by all participants.
Odisha Achieves 31.5% Growth In Fish Production, Emerges 4th Highest In Country

Odisha has emerged as fourth largest state in fish production and seventh largest state in the production of marine fish in the country. This was revealed at a review meeting of Fisheries and Animal Resources Development department chaired by Asit Tripathy, Principal Advisor to the Chief Minister, in Bhubaneswar on October 12, 2023. “Odisha has become self-reliant in the production of fish seed. With a fish production of 7.62 lakh ton annually, the state has achieved an annual growth rate of 31.5%,” he said. Stating that Odisha has become seventh largest state in production of marine fish in the country, he said it is also leading in the export of fish. There has been a remarkable growth in the production, sale and distribution of fish in the state in the last five years, he added. The government has decided to construct an aqua culture farm in Hirakud reservoir in Sambalpur district at a cost of Rs 100 crore. It will have fish production facility, processing unit and general infrastructure. Besides, a plan will be prepared for fish farming in the brackish water in coastal areas of the state.

Fish production in Telangana up by 119 per cent

Telangana is experiencing a significant surge in fish farming, marking a true “blue revolution” for the State. Fish production in 2022-23 reached a staggering value of Rs 6,191 crore, showcasing a remarkable 193 percent increase from Rs 2,111 crore in 2016-17. The growth is attributed to the success of the fish seedlings distribution scheme launched in 2017-18, which recorded a fish production worth Rs 3,419 crore in its inaugural year. In terms of quantity, the fish production shot up from 1,93,732 tonnes in 2016-17 to 2,62,252 tonnes in 2017-18, and then to an impressive 4,24,327 tonnes in 2022-23. According to a report by Directorate of Statistics and Economics released last week, the fish production increased by 119 per cent. Telangana stands as the country’s third-largest inland water spread, covering 5.73 lakh sq km across various water bodies, including reservoirs. In terms of inland fish production, it claims the fifth position nationally. The State government’s initiative of distributing free fish seedlings across approximately 11,067 water bodies in 2017-18 has played a pivotal role in this success. With an investment of Rs 44.6 crore, around 51.08 crore fish seedlings were released, leading to a fish production of 2.62 lakh tonnes within a period of 8-10 months.

The last fiscal year witnessed an even more impressive growth, with 77.14 crore fishlings worth Rs 62.79 crore released in 23,799 water bodies, resulting in a record-breaking 4.24 lakh tonnes of fish production valued at Rs 6,191 crore. An official predicted that Telangana is poised to surpass its own record in the current fiscal year, with fish production estimated to reach Rs 6,500 crore, considering the substantial increase in fishing distribution. The demand for freshwater fish from Telangana has seen a significant upswing across the country. During the corresponding period, prawn cultivation has also experienced substantial growth, recording a production of 14,142 tonnes valued at Rs 465 crore in 2022-23 across 279 water bodies. Prawn cultivation was taken up in about 11 water bodies in 2017-18 which resulted in production of 7,783 tonnes valued at Rs 171.23 crore. Interventions by the State government have not only contributed to this boom in fish production but have also led to significant increase in the average income levels of Fishermen Cooperative Societies (FCS) and their members. The number of FCSs has grown by 15 percent, from 4,002 in 2016-17 to 4,604 in 2020-21, while membership has risen by eight percent during the same period, from 2.85 lakh in 2016-17 to 3.09 lakh in 2020-21. Fishlings distribution grew from 2.785 crore in 2016-17 to 77.14 crore in 2022-23. Fish production shot up from 1.93 lakh tonnes in 2016-17 to 4.24 lakh tonnes in 2022-23. Fish production value increased from Rs 2.111 crore in 2016-17 to Rs 6,191 crore in 2022-23. Prawn production grew from 7,783 tonnes in 2017-18 to 14,142 tonnes in 2022-23. Prawn production value escalated from Rs 171.23 crore in 2017-18 to Rs 465 crore in 2022-23.

MPEDA aims to double seafood exports by 2030

The Marine Products Export Development Authority (MPEDA), a statutory body under the Ministry of Commerce and Industry, has launched a host of initiatives to double the share of seafood exports by 2030. The country’s contribution of value-added seafood accounts for around 10 per cent of the total seafood exports, which translates into around USD 860 million. The country controls only 2.5 per cent of the total global value-added seafood trade of USD 34 billion. Deputy director of MPEDA (regional division) Archiman Lahiri said there is a global demand for seafood from the country and the exporters need to be focused on the quality of the products. “The target has been set for 20 per cent value-added seafood product...
Established in July 2022, Alpha Feeds is a joint venture between Allanasons Pvt. Ltd. and Premium Chick Feeds Pvt. Ltd., catering to the concentrate business for poultry in India.

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- Does not interact with Vitamins & Minerals
- Protects Feed from all Mycotoxins
- Maintains Ruminal and Intestinal Health
- Supports Hepatic Regeneration
- Helps to improve Health & Performance

**Usage**
- Regular uses: 0.5 -1 kg / Ton of Feed
- Health Challenges: 2 kg / Ton of Feed
- Top Dressing: 10 g / head / day

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exports by 2030, given the changing preferences in the consumer market. The export authority is pushing for a trained workforce to achieve the target of doubling the seafood exports by arranging a series of training programmes across the country,” he said. The state government has planned a new scheme - Promotion of Aquaculture and Shrimp Export Cell to promote processing units for value addition of fish in state. The initiative will further increase the export competency of marine fish exporters.

India’s fish production at record 175.45 lakh tonnes in 2023

India has achieved a record fish production of 175.45 lakh tonnes in FY 2022-23, making it the third-largest fish-producing country in the world. This accounts for 8 per cent of global production, contributing about 1.09 per cent to the country’s Gross Value Added (GVA) and over 6.72 per cent to the agricultural GVA. The sector has immense growth potential and requires focused attention through policy and financial support to ensure sustainable, responsible, inclusive and equitable development. The government has announced a new sub-scheme called the Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana (PM-MKSSY, 2023-24). This is a central sector sub-scheme under PMMSY with a targeted investment of INR 6,000 crore. The scheme has been introduced to enable activities for fishermen, fish vendors and micro & small enterprises. PM-MKSSY aims to focus on the gradual formalization of the unorganized fisheries sector, including digital inclusion, and facilitating access to institutional financing, especially working capital. It also aims to provide one-time incentives to beneficiaries for opting for aquaculture insurance, incentivizing fisheries and aquaculture microenterprises for fisheries sector value-chain efficiencies, incentivizing micro and small enterprises for the establishment of supply chains of safe fish products to consumers and providing additional incentives to the applicants for creating jobs for women in the fisheries sector.

Centre earmarks Rs 120cr to bolster fisheries in Goa

The Union ministry of fisheries, animal husbandry and dairying has earmarked Rs 310 crore, with a central contribution of Rs 120 crore under the PMMSY for the comprehensive advancement of fisheries in Goa. Responding to queries raised by MP Sadanand Shet Tanavade during the recent Rajya Sabha session, the Union ministry articulated a comprehensive strategy aimed at bolstering the fisheries sector’s growth in Goa. The financial support encompasses a wide array of initiatives, including support for traditional fishermen, provision of communication or tracking devices, sea-safety kits, insurance coverage, acquisition of deep-sea fishing vessels, alternative livelihood opportunities, and comprehensive training and skill development initiatives. Goa has reported a fish productivity of 3-4 tonnes/hectare. Under the flagship scheme of PMMSY, Goa has witnessed approvals totalling to Rs 107.9 crore over the past three years. These approvals encompass a diverse spectrum of developmental projects, ranging from the construction of new ponds and technology-infused high-incomegenerating activities to the installation of cages, promotion of ornamental fisheries, establishment of fish feed mills and procurement of deep-sea fishing vessels.

‘Investments by Centre in the last 8 years has boosted fisheries sector’

Union Minister of Fisheries Animal Husbandry and Dairying, Parshottam Rupala on October 17 said the Centre’s increased focus on the fisheries sector in the last decade has substantially boosted fish and aquaculture production. Since 2015, the Centre has substantially stepped up public investments to the tune of ₹ 38,572 crore in the fisheries sector. Due to the investments, India is the second largest aquaculture producer and third largest fish producer in the world. India’s fish production increased to a record 17.4 million tonnes (provisional) in 2022-23. Fish production from inland aquaculture increased to 13.13 million tonnes in 2022-23, he said. The Centre has in the last nine years ushered in transformational changes/reforms through multi-pronged strategies and focused interventions in the areas of fish production and productivity, technology infusion, strengthening and modernisation of infrastructure, boosting domestic consumption and exports, growth of entrepreneurship and employment with the welfare of fishers and fish farmers at the core, he said. India’s seafood exports have more than doubled in the last nine years with record exports of ₹ 63,969 crore in 2022-23. Similarly, shrimp exports more than doubled in the last nine years with exports of ₹ 43,135 crore, he said. The minister was addressing the international conclave on the theme ‘Mainstreaming Climate Change into International Fisheries Governance and Strengthening of Fisheries Management...
India has overtaken China to become the largest contributor of inland capture water fisheries, thereby emerging as one of the top three fish-producing countries in the world. T Pradeep kumar, Vice Chancellor, Kerala University of Fisheries and Ocean Studies (Kufs), said the country’s growth in both aquaculture and capture fisheries has been phenomenal in the last few decades due to meticulously planned projects and developmental strategies, especially with the outlay of ₹ 20,5000 crore under Prime Minister’s Matsya Sampada Yojana. On the occasion of World Fisheries Day, Parshottam Rupala, Union Minister for Fisheries, Animal Husbandry & Dairying said the country’s inland fish production reached a remarkable surge at 131 lakh tonnes, doubling over the past nine years following the strategic government initiatives. According to the Kufs VC, the growing role of fisheries and aquaculture in meeting global food security, nutrition and employment is being discussed like never before by planners and policymakers. Several initiatives including biofloc farming, integrated multi-trophic aquaculture mangrove-based organic farming, trout culture in temperature-controlled indoor facilities, cage culture, seaweed culture, production of high-value ornamental fish and so on have become popular in different parts of the country. Kufs has been focusing on standardising the breeding technologies of indigenous cultivable fishes with the intention of bringing more diversity in the pool of species available for aquaculture. Rajamanohar Somasundaram, Founder and CEO, Aquaconnect said, “With 8 per cent share in global fish production, India is the second largest aquaculture producer, third largest fish producer, and fourth largest seafood exporter, putting us on top spot when it comes to global seafood production. This growth trajectory in the last two decades is what makes aquaculture a sunrise sector, paving the way for Blue Revolution 2.0”.

India registers 33.31 % growth in Egg production during 2022-23 over the past 5 years

According to Basic Animal Husbandry Statistics 2023, major contribution in the total Egg production comes from Andhra Pradesh with a share of 20.13 per cent of total Egg production. Parshottam Rupala, Union Minister for Fisheries, Animal Husbandry & Dairying released the Basic Animal Husbandry Statistics 2023 (milk, egg, meat and wool production 2022-23) based on Animal Integrated Sample Survey (March 2022-February 2023) during the National Milk Day event at Guwahati. The main features of the Basic Animal Husbandry Statistics are: Union Miniter Parshottam Rupala informed that the Production of Milk, Egg, Meat and wool in the country is estimated annually based on the results of Integrated Sample Survey (ISS) which is conducted across the country in three seasons i.e., Summer (March-June), Rainy (July-October) and Winter (November-February). Parshottam Rupala stated that the total Egg production in the country has estimated as 138.38 billion nos. during 2022-23 registered a growth of 33.31 per cent growth over the past 5 years as compared to the estimates of 103.80 billion numbers during 2018-19. Further, the production has increased annually by 6.77 per cent during 2022-23 over 2021-22. In past the annual growth rate was 9.02 per cent in 2018-19; 10.19 per cent in 2019-20; 6.70 per cent in 2020-21 and 6.19 per cent in 2021-22.

Rupala informed that the Major contribution in the total Egg production comes from Andhra Pradesh with a share of 20.13 per cent of total Egg production followed by Tamil Nadu (15.58 per cent), Telangana (12.77 per cent), West Bengal (9.94 per cent) and Karnataka (6.51 per cent). In terms of AGR, the highest growth rate was recorded by West Bengal (20.10 per cent) and followed by Sikkim (18.93 per cent) and Uttar Pradesh (12.80 per cent).
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Balanced Feeding of Ruminants: Some Basic On-Farm Guidelines

Keshav V. Sharma, Rakesh Choudhary, Prateek Tripathi, Manish K. Singh and M.S. Mahesh

Introduction

Despite having a large livestock population with mega-diversity in India, the majority of ruminants are reared in traditional system, which may not be fully scientific. This is further characterised by imbalanced nutrition, causing sub-optimal production, compromised health and ultimately results in diminished farm returns. Particularly, most of the small-holder farms overlook the importance of feeds and feeding, leading to poor expression of genetic potential of ruminants — mainly cattle, buffaloes, sheep and goats — thus suffer from sub-optimal performance and low farm bottom-line. In this direction, the present article aims to guide livestock producers on some of the practical feeding tips that are essential to optimise yield of animal produce, which may translate into improved farm revenue in ruminant agriculture.

Balanced feeding: Why and how?

The significance of feeding could be gauged by the fact that feed alone represents about 65-70% of recurring expense of farm. Hence, it is of paramount importance to feed a scientifically-balanced ration/diet for ruminants. On the other hand, imbalanced nutrition not only compromises productivity and economic gain, but also jeopardises reproduction and health, thus impeding animal welfare and long-term sustainability.

Going by the standard definition, a “balanced ration” is one that provides nutrients in such proportions and amounts that it will properly nourish a given animal for 24 hours. For ruminants, a balanced feeding regimen generally comprises of ensuring adequate allocation of roughages (also often referred to as forages) and concentrates to fulfil the daily nutrient requirements. This should be in commensurate with the specific production targets — for instance, growth, lactation etc. — of particular animals. The first and foremost consideration in feeding is fulfilling dry matter (DM) requirement, which can be calculated as 2% of live weight plus 33% of milk yield. i.e., for a 400 kg weighing cow producing 10 kg of milk, the daily DM intake is about 11.3 kg. This DM from both roughage and concentrate should contain approximately about 14-16% crude protein (CP) and 60-65% total digestible nutrients (TDN) to fulfill both protein and energy, respectively. The overall benefits of balanced feeding is depicted in Fig. 1.

I. Roughages

Feedstuffs like green fodders and dry fodders put together are called roughages. These are fibrous and bulky in nature, contributing to 60-80% of any typical ruminant diets. In addition, roughages provide physically-effective fibre crucial for rumen fermentation and milk fat synthesis.

(a) Green forages

The following are some of the most commonly used succulent green fodders having over 70% moisture:

- **Cereals**: Maize, sorghum/jowar, pearl millet/bajra, oats, hybrid/super Napier, guinea grass, ryegrass, rhodes etc.

- **Legumes**: Berseem, lucerne (alfalfa), cowpea (lobia), Stylosanthes etc.

- **Tree foliages** (top feeds/protein bank): Moringa,
subabul, babul, neem, peepal, banyan, ber, *Melia*, siris, hedge lucerne etc.

**(b) Dry forages**

The following are some of the most commonly used dry fodders that contain about 90% DM:

- **Cereals**: Wheat straw, paddy straw, jowar stover, bajra stover, maize stover etc.
- **Legumes**: Groundnut haulms, hays etc.

**Table 1. Feeding guidelines of roughages for ruminants**

<table>
<thead>
<tr>
<th>Species</th>
<th>Green forage* (kg/animal/day)</th>
<th>Dry forage (kg/animal/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle and buffaloes</td>
<td>20-30</td>
<td>2-5</td>
</tr>
<tr>
<td>Sheep and goats</td>
<td>1-2</td>
<td>0.2-0.4</td>
</tr>
</tbody>
</table>

*A A good quality “silage” (anaerobically fermented fodder) can also be fed at the same levels.

It is always recommended to chaff the roughages to 1-2 inch length to enhance the voluntary intake and minimise wastage. Additionally, dry forages may also be soaked in water for a few hours before feeding, which decreases forage toughness by softening and thereby augments voluntary intake and digestibility.

**II. Concentrate mixture**

It is a mixture of ingredients that are concentrated in nutrients such as energy (e.g., cereal grains) and protein (e.g., oilseed cakes and meals), and low in fibre. The simple thumb rule to prepare an on-farm concentrate mixture is by considering approximately one third proportion each of grains, oilcakes and by-products along with mineral-vitamins (2%) and salt (1%). The ingredients like grains, cakes and by-products need to be coarsely ground before mixing to prepare a “mash” (i.e., coarse powder) feed. Furthermore, the performance-enhancing additives (e.g., probiotic yeast at 0.1%) and nutritional supplements (e.g., bypass fat at 1-2%), can also be included while preparing the concentrate mixture. The following is a general ingredient composition of concentrate mixture suitable for ruminants with 22% CP, 30% starch and 72% TDN. Under farm conditions, on financial terms, “income-over feed cost” appears an additional practical measure that dictate the maximum level of concentrate feeding, whilst also ensuring no signs of ruminal acidosis.

**Table 2. An ideal concentrate mixture for ruminants**

<table>
<thead>
<tr>
<th>Type</th>
<th>Name of ingredient</th>
<th>Proportion (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cereals</td>
<td>Maize</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Broken rice</td>
<td>15</td>
</tr>
<tr>
<td>Oilseed cakes and meals</td>
<td>Mustard oil cake</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Soya bean meal</td>
<td>5</td>
</tr>
<tr>
<td>Agro-industrial by-products</td>
<td>Wheat bran</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Pulse screenings</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>De-oiled rice bran</td>
<td>8</td>
</tr>
<tr>
<td>Sweetener binder</td>
<td>Molasses</td>
<td>5</td>
</tr>
<tr>
<td>Additives and supplements</td>
<td>Urea</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>Sodium bicarbonate</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>Mineral mixture*</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Salt</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

*Comprising of both macro- and micro-minerals (BIS type-II)

**Table 3. Feeding guidelines of concentrate mixture for ruminants**

<table>
<thead>
<tr>
<th>Cattle and buffaloes</th>
<th>Maintenance (i.e., 1.5 kg/animal/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Milk production</td>
</tr>
<tr>
<td></td>
<td>Cows: 400 g/kg milk</td>
</tr>
<tr>
<td></td>
<td>Buffaloes: 500 g/kg milk</td>
</tr>
<tr>
<td>Sheep and goats</td>
<td>Growing stage (i.e., 2% of body weight)</td>
</tr>
<tr>
<td></td>
<td>Flushing* and milking (400-500 g/animal/day)</td>
</tr>
<tr>
<td></td>
<td>Breeding bucks/rams (500-1000 g/animal/day)</td>
</tr>
</tbody>
</table>

*Practice of additional concentrate feeding in and around breeding to enhance ovulation and conception rate.

Apart from the above guidelines on roughage and concentrate feeding, it is always necessary to provide clean drinking water for animals on a free-choice basis and additional salt licks may also be placed in the manger.

**Conclusion**

As ruminant farming is undertaken as a source of livelihood security by small and marginal farmers in India, practicing scientific husbandry practices — including balanced feeding — would help realise success in ruminant operations, thus further bolstering country’s livestock economy.

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**Neonatal Calf Diseases and Their Management**

Sakshi\(^1\), Priyanka Kumari Sharma\(^2\)

**Introduction:**
Dairying is one of the most important sectors for many countries, both developed and developing ones where it serves as the backbone of national economy. In countries like New Zealand, Australia, United States of America and some of the European countries, the dairy sector is well established and earing fortunes for the farmers, entrepreneurs and end consumers also. In relation to the developed nations, the dairy sector is booming slowly in developing countries like in India where from small scale to large scale dairy farms are coming up. Calves are the future herd of dairy industry and its care and management determines the economics of dairy farm dearly. So the saying goes by "the future of dairy farm depends on today’s calf." For a dairy farm to be successful and financially viable, it is inevitable to have a greater number of calves which are healthy and disease-free per year. Not only that, their survival and rapid growth is utmost significant for improving the sustainability and propagation of the dairy herd (1). In addition to that, in dairy farms, calf survivability is an important feature for both breeding and economic considerations. However, in many underdeveloped nations, a considerable number of calves die during their neonatal period, resulting in major financial losses and future breeding stock. Neonatal calf mortality ranges from 8.7 to 64% worldwide. And this mortality alone accounts for 80-85% in the first month of life and can go up during third week of life (2). The survival rate of calf crops produced by dairy farms determines the viability of every commercial dairy farm, but most dairy farms have urgent challenges with neonatal calf mortality. By considering heavy loss in neonatal phase, it is an important task to manage neonatal disease to yield a greater number of healthy calves. On an average, in a well-managed dairy farm calf mortality should be less than 5% in first 30 days of life.

**Neonatal diseases**
One of the most important aspects is to distinguish between perinatal and postnatal diseases and the age group which falls under that category or classification. The term perinatal is usually used to describe morbidity or mortality that occurs at birth and in the first 24 hours of life. The term neonatal is usually used to describe morbidity or mortality between birth and 14 days. However, there is variation in the use of these terms. In addition to these, post-natal diseases can be defined as disease which occurs after birth and these can be divided into three classes.

1. **Early postnatal disease:** Occurs within 48 hours of birth and diseases which commonly seen during this period are hypothermia, hypoglycemia, malnutrition related low vigor calf, naval ill, neonatal septicemia and enterotoxigenic colibacillosis.

2. **Delayed postnatal disease:** Occurs between 2 to 7 days of age and these diseases are mainly result of incomplete gamma-globulin transfer through colostrum and it includes joint ill, lamb dysentery and most of the viral infection like rotaviral and coronaviral diarrhea.

3. **Late postnatal disease:** Occurs between 1 to 4 weeks of age and these are also as a result of hypogammaglobulinemia. Examples are cryptosporidium, enterotxaemia and white muscle disease.

**Factors responsible for neonatal diseases:**
Several factors predispose the calves for neonatal diseases like the immunologic incompetence, colostrum dependence which is very essential for adequate antibodies, frequent intake of readily available carbohydrate to maintain energy and body temperature etc. One of the critical factors is the failure to transfer immunoglobulins which is major cause for neonatal disease. It acts as perpetuating cause for calf diarrhea, hypoglycemia, hypothermia etc. In addition to that, calves which are born with dystocia are more prone to disease as dystocia exposes them to stress condition resulting in weak suckling reflex, mild respiratory acidosis etc.
In a broader sense, the occurrence of neonatal disease is driven by two prime factors which are the exposure of neonates to infection or infectious agents and secondly the ability of the neonates to fight against it and develop resistant against it. There is a constant battle between these factors and the outcome of the battle determines the fate of the calf. Some infectious agents are very virulent and an exposure can lead to disease manifestation. With others, the majority, the defences of the host must be compromised or the infection challenge must be very high before clinical disease occurs. In addition to that, the managemental factor also has a great influence on these factors, and the recognition and correction of these risks is the key to the prevention of neonatal disease in both the individual and the group.

**Pathogenesis of neonatal diseases:**

The pathogenesis of the neonatal infectious diseases depends upon the type of infections. In certain diseases like enterotoxigenic *E. coli* infection, the infectious organisms tend to remain localized at the initial site of infection, and spread later on causing bacteremia followed by septicemia with severe systemic signs. The Localization of organisms is most commonly observed in the joints, producing a suppurative or nonsuppurative arthritis whereas less common sites are in the eye, in the heart valves or in the meninges. Secondary lesions post infections are generally observed after 1 to 2 weeks of age.

**Control and Prevention strategies for neonatal diseases:**

There are several managemental and clinical approaches to checkmate occurrence of neonatal diseases. The basic principle for prevention of neonatal diseases are, reduction of risk of acquisition of infection from the environment, removal of the newborn from the infectious environment if necessary, increasing and maintaining the nonspecific resistance of the newborn and increasing the specific resistance of the newborn through the use of vaccines. In addition to that following points can be given consideration for prevention and control of neonatal diseases:

1. Immediately after birth, dip the navel in a 7% tincture iodine solution.
2. Colostrum feeding (10% BW) should be done within 6 hours of birth.
3. Take the newborn calf out of the maternity pen to prevent exposure to pathogens.
4. Proper dry up the calf to prevent hypothermia or if its winter then provide any heat source.
5. Dam should be vaccinated during dry period against important infectious disease as it will increase immunoglobulin titer in colostrum and will provide passive immunity to calf.
6. Proper nutritional management should be followed so that calf will also will be adequate body weight.

**Conclusion:**

Neonatal diseases strike the vulnerable young ones at very early stage of life resulting severe economic losses to the dairy sector. There are various managemental and clinical ways to combat the infectious and non-infectious causes of neonatal diseases. One of the most critical aspects in combating neonatal diseases is to feed enough colostrum to the neonates thereby supplying enough immunoglobulins to fight against infectious agents. Furthermore, it enables the neonates to strengthen the disease resistance capabilities. On managemental aspect, provision of clean and hygienic barn and timely attention to the neonates minimizes the risk associated with neonatal diseases.

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<th>Specific Metal-Glycine Complex</th>
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<td>High Solubility</td>
<td>Proven Stability</td>
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Upenderjit Kaur, Rahul Patel and M.R. Garg

Abstract: The Indian Dairy Sector has a long-standing history of leading sustainability efforts and prioritizing the welfare of the masses. Antimicrobial Resistance (AMR) poses a global threat, requiring collaborative efforts from countries worldwide to tackle this complex issue. This paper explores how the Indian Dairy Sector, despite its relatively smaller contribution to AMR compared to other sources due to minimal antibiotic usage, can serve as a model for other major contributing sectors to follow.

Introduction: As per IMF and Goldman Sachs predictions for the top 10 economies by 2075, India would be the world’s second largest economy with GDP of $52.5 trillion followed by the US at $51.5 trillion and succeeding by China projecting a GDP of $57 trillion. We can interpret this as India exporting major products in the world by 2075. Peoples trust in safer products from India would give us an edge to out-perform our competitors.

Some of the global news about Indian products are not helping in the current situation for instance,

CDC concerned about drug-resistant bacteria strain allegedly linked to eye-drops imported from India

Chemical-based Global Pharma Healthcare is recalling 50,000 tubes from the U.S. market following reports of contamination

Although as per a preliminary report, the samples are free of contamination. In the United States, reports of the alleged contamination have come in from opened bottles. We in our dairy sector, being a dynamic and innovative industry can play our part in setting up example of high safety standards by minimizing use of Antibiotics in livestock treatment and replacing them with ethnoveterinary formulations. Since, ethnoveterinary formulations have no side-effects or environmental concerns we can reap their full potential by using them on livestock in conditions which are prone to infections. For example, applying turmeric based preparations to cows 15 days prior calving as a preventative measure for mastitis which successfully reduces mastitis cases as per the feedback from dairy farmers.

Current Status of AMR in India:

AMR poses a severe global public health threat, with India experiencing particularly alarming rates of antibiotic resistance. Bacteria causing infections in both community and healthcare settings in India display some of the highest resistance levels. For instance, Acinetobacter baumannii, Escherichia coli, and Klebsiella pneumoniae exhibit resistance rates exceeding 70% to broad-spectrum antibiotics like fluoroquinolones and third-generation cephalosporins, while Pseudomonas aeruginosa shows a resistance rate of over 50%.

Table: 1 Yearly isolation trends of top 10 isolates from all samples by ICMR

<table>
<thead>
<tr>
<th>Bacteria</th>
<th>Year-2016 (%)</th>
<th>Year-2017 (%)</th>
<th>Year-2018 (%)</th>
<th>Year-2019 (%)</th>
<th>Year-2020 (%)</th>
<th>Year-2021 (%)</th>
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<tbody>
<tr>
<td>Escherichia coli</td>
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<td></td>
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<td></td>
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<tr>
<td>Klebsiella pneumoniae</td>
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<td></td>
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<tr>
<td>Enterococcus faecalis</td>
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</table>

Source: AMR surveillance Network, ICMR, 2021

The carbapenem class of antibiotics serves as a critical last-resort treatment for severe bacterial infections in humans. However, resistance to carbapenem among various gram-negative bacteria is alarmingly high. A. baumannii exhibited the highest carbapenem resistance at 67.3% and 70.9% followed by K. pneumoniae at 56.6%, P. aeruginosa at 46.6% and 41.8%, and E. coli at 11.5% and 16.2%.

Colistin, the last-resort antibiotic in human medicine, is
facing challenges with increasing use for treating carbapenem-resistant gram-negative bacterial infections in India. Consequently, colistin resistance has emerged among gram-negative bacteria. Disturbingly, bloodstream infections caused by dual carbapenem- and colistin-resistant K. pneumoniae are associated with a staggering 69.3% mortality rate in Indian patients.

10 Key Sources responsible for AMR:

1. Overuse and Misuse of Antibiotics: The inappropriate use of antibiotics in human medicine, such as prescribing them for viral infections or not completing the full course of treatment, contributes to the development of resistant bacteria.

2. Agricultural Use of Antibiotics: Antibiotics are commonly used in agriculture to promote growth and prevent diseases. This agricultural use can lead to the development of resistant bacteria that can spread to humans through food consumption or environmental contamination.

3. Poor Infection Control: Inadequate hygiene and infection control practices in healthcare settings can facilitate the transmission of resistant bacteria among patients, healthcare workers, and visitors.

4. Global Travel and Trade: The movement of people and goods across borders can lead to the international spread of resistant bacteria and resistance genes.

5. Lack of New Antibiotics: The decline in the development of new antibiotics has limited treatment options for resistant infections, allowing resistant bacteria to thrive.

6. Environmental Contamination: The release of antibiotics and resistant bacteria into the environment through sewage, agricultural runoff, or pharmaceutical waste can contribute to the development of AMR in environmental bacteria.

7. Self-Medication and Non-Prescription Antibiotics: In some countries, antibiotics are available without a prescription, leading to self-medicating and inappropriate use, which can fuel AMR.

8. Non-Adherence to Infection Prevention Measures: Failure to adhere to proper hygiene practices in households, communities, and healthcare settings can facilitate the spread of resistant bacteria.

9. Lack of Awareness and Education: Insufficient awareness among the public, healthcare providers, and agricultural practitioners about the consequences of AMR and appropriate antibiotic use can exacerbate the problem.

10. Cross-Species Transmission: The transmission of resistant bacteria between animals, humans, and the environment can contribute to the widespread dissemination of AMR.

India’s efforts in controlling AMR:

India has taken several initiatives and implemented various measures to combat antimicrobial resistance (AMR).

1. National Action Plan on Antimicrobial Resistance (NAP-AMR): India has developed a National Action Plan on Antimicrobial Resistance to provide a comprehensive framework for tackling AMR across human health, animal health, and agriculture sectors.

2. Surveillance and Monitoring: India has strengthened its surveillance systems to monitor antibiotic resistance patterns in various bacteria and assess the prevalence of resistant strains. For example, Indian Council of Medical Research (ICMR) initiated the design and development of ICMR’s Antimicrobial Resistance Surveillance system (i-AMRSS). The standardized data collected through i-AMRSS would be valuable for various collaborators to monitor outbreaks and infection control practices, evaluate transmission dynamics and formulate antibiotic use and selling policies. The tool is presently being used to capture human testing and consumption data; however, it can be extended for AMR surveillance using a ‘One Health’ approach [8].

3. Antibiotic Stewardship Programs: Efforts have been made to promote responsible antibiotic use in healthcare facilities to reduce unnecessary prescriptions and prevent the development of antibiotic resistance.

4. Training and Awareness: Training programs and awareness campaigns have been conducted to educate healthcare professionals, veterinarians, farmers, and the public about the proper use of antibiotics, the consequences of AMR, and the importance of infection prevention and control.

5. Regulation of Antibiotics: The government has implemented regulations to control the over-the-counter sale of antibiotics and has promoted prescription-only access to these drugs.
6. **One Health Approach**: India has recognized the importance of a One Health approach that addresses AMR in both human health and animal health sectors to tackle the issue holistically.

7. **Research and Innovation**: Efforts have been made to promote research and innovation in the development of new antibiotics, alternative therapies, and rapid diagnostic tools to combat AMR effectively.

8. **Capacity Building**: India has been working on building the capacity of healthcare facilities, laboratories, and regulatory bodies to effectively address AMR-related challenges.

9. **International Collaboration**: India actively collaborates with international organizations such as the World Health Organization (WHO), and the Food and Agriculture Organization (FAO) to share knowledge and resources in the fight against AMR.

Britain and India are enhancing their scientific research collaboration with five new projects aimed at combatting antimicrobial resistance (AMR), which holds the potential for significant breakthroughs in the global fight against antibiotic-resistant bacteria and genes.

India’s role as a major producer of antimicrobial drugs in the pharmaceutical industry’s global supply chain makes its involvement in the research especially critical. The primary objective of these projects is to gain a deeper understanding of how waste from antimicrobial manufacturing may inadvertently contribute to the fueling of AMR. To support these endeavors, the UK is contributing £4 million from the UK Research and Innovation Fund for International Collaboration, with India matching this amount, resulting in a total funding of £8 million.

This collaborative effort showcases a shared commitment by both countries to invest in scientific research and international cooperation to combat AMR effectively. The research endeavors hold promise for generating vital insights and solutions in the ongoing battle to safeguard public health and preserve the efficacy of antibiotics worldwide. [9]

**Role Indian Dairy Sector can play to help government to minimize AMR in India:**

Promoting the use of Ethnoveterinary formulations as a preventative measure to reduce infection rates is a promising approach to combat AMR in the Indian Dairy Sector. Collaborating with government and international organizations, the sector can design and implement best practices to minimize AMR, establish standard operating procedures for judicious antibiotic use, and create a comprehensive dataset of AMR organisms. By seeking innovative ways to eliminate AMR, the sector can serve as a role model and inspiration for other sectors and nations to follow suit, making significant strides in reducing AMR globally. The Indian Dairy Sector’s commitment to developing sustainable practices will pave the way for a healthier future for all.

**Conclusion:** Antimicrobial resistance (AMR) stands as an ever-growing global health crisis that demands immediate and concerted action from all sectors. With the rise of resistant bacteria and dwindling antibiotic options, the consequences of AMR are far-reaching. As we navigate this critical challenge, collaborative efforts at local, national, and international levels are essential. Governments, healthcare professionals, veterinarians, researchers, and policymakers must join hands to develop and implement effective strategies for responsible antibiotic use, infection prevention, and surveillance. The role of the Indian Dairy Sector in tackling AMR provides a beacon of hope. By promoting ethnoveterinary formulations as a preventative measure, collaborating with authorities and international organizations, and designing best practices for judicious antibiotic usage, the sector exemplifies a forward-looking approach. With an emphasis on data-driven innovations and sustainable practices, the Indian Dairy Sector emerges as a model for other industries and nations to follow.
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Veterinary Profession in the Wake of Changing Global Scenario

Prof. R.N.Sreenivas Gowda

Animal Husbandry is making a significant contribution to the national economy and socio-economic development in the country. In rural India where over 15-20% families are landless and about 80% of the land holders belong to the category of small and marginal farmers, livestock is the main source of livelihood. In the absence of fertile lands and assured irrigation which are controlled by a small population of rich farmers and lack of employment in the industrial and service sectors, most of the rural families belonging to socio-economically weaker sections of the society maintain different species of livestock to supplement their income. While the land owners prefer cattle and buffaloes, the landless prefer to own sheep, goat and poultry. With the policy of the State Animal Husbandry Department to extend free breeding, vaccination and veterinary services and permit free grazing on community lands, the farmers were encouraged to expand their herd size without any major financial burden. This has probably been the reason for the presence of the world’s largest livestock population in India. India ranks first in cattle and buffalo population, second in goat, third in sheep and seventh in Poultry.

Livestock and agriculture sector contribute 30% of gross domestic product. Over 70% are dependent in these sectors for livelihood. Advanced technologies of health, management, disease control and production of livestock including poultry has ranked India the First milk producer, second largest egg producer and 4th largest broiler producer in the world scenario. Poultry sector has shown 20% annual growth rate, 1200 billion mega poultry industry is at a takeoff stage to enter into the international market. Indian poultry market consisting broilers and eggs was worth INR1,750 Billion(2018) The market is further projected to reach INR4,340 Billions by 2024.

- Significant increase in production of milk, meat eggs and wool were made by the combined effects of veterinarians and livestock owners.
- Our country is a global leader in milk production growing at an annual rate of about 6.5%, the estimated milk output of 188 million tons in 2018-19, was worth Rs. 6,54,000 crore – more than the combined value of wheat and paddy.
- Egg production is growing at a staggering 8%, crossing the 100 billion number and touching 104 billion in the fiscal year gone by. At an average rate of Rs 4, the 100 billion-plus egg production would be worth over Rs. 40,000 crore annually, with the roughly 4 million tons of poultry meat at Rs. 75/kg adding another Rs. 30,000 crore.
- Fish production has consistently growing at roughly 7% i.e. at 13.7 million tones and is next to China. Similarly, Marine products are also the single largest agricultural export commodity.
- Infectious diseases were contained by use of biologicals & Veterinary Techniques.
- Productivity was enhanced through cross breeding and better management by veterinarians.
- Improved antibiotics, anthelmithics, quality vaccines and diagnostic kits led to reduction in the number of outbreaks of infectious diseases are invented and checked by veterinarians.

Animal husbandry is an important sector, which can meet three demands.

- Gainful employment to millions of people (Marginal and landless persons)
- Providing adequate animal protein to children, mother and other people
- Production of organic manure to fertile soil

It is estimated that by the end of 2030 we need 150 metric tones of milk, 4-5 metric ton of egg, 12-14mt of fish.

Animal Husbandry- Pivotal role

- Sustainable development through application of technologies
- Vigil in control and prevention of various diseases
- Neglecting the health of animals not only leads to loss in production but also superior germplasm.

Veterinary science covers all veterinary activates including
animal production & health coverage. It is core discipline that performs essential public health functions and directly influences human health in following ways.

1. Professional knowledge and experience is used to respond to infectious disease outbreaks and intoxication from animal and environmental reservoirs including products of animal origin.
2. Health care services and health research for both human and animals have common activities.
3. Veterinary science emphasizes preventive, economic and population aspects of animal health and production, as they relate to human health and well-being.
4. In the forthcoming decades, there is an urgent need to expand the links between human and animal medicine. For eg., At least one half of the 1700 agents known to infect humans have animal or insect vector or reservoir and may emerge infections either.

Veterinary science contributes to human health by promoting the health of the animals, which provide necessary income, food, transport, draught power and the raw materials for clothing through out the world. By promoting animal health, the quality and quantity of animal products is enhanced. This is especially important in developing countries where food of animal origin help to improve the nutritional status of mal nourished people by providing high quality protein and micronutrients. The use of manure as fertilizer and fuel increases crop production especially in small scale farms.

Equitable distribution of food within family, community and nation will contribute to health equity. One of the global health targets of HEALTH FOR ALL IN THE 21ST CENTURY which emphasizes: “One World One Health”

- Making available safe food
- Safe drinking water
- Adequate sanitation
- Adequate shelter in sufficient quantity & quality to every person
- Activity in promoting human health
- High quality food, especially for children & women

ROLE OF VETERINARIANS IN FOOD PRODUCTION CHAIN:

- A change in the focus from individual animal to herds and populations and system based controls (e.g. Hazard analysis critical control point (HACCP))
- Increased responsibility of participants at all points in the food production chain to certify the quality of all phases of production and the final products

- Development and implementation of new technologies for food and feed production, preservation and commercialization, and related problems of toxic residues and improved standard of hygiene.
- Implementing and ensuring compliance with the requirements of international agreements and convention (e.g. WTO agreement on application of sanitary and phyto-sanitary measures) and national regulation, both to allow access to international market and to guarantee the internal market by certification of product.

Core domain of Veterinary Profession is production and protection of animals through diagnosis, surveillance, epidemiology, control, prevention and elimination of zoonosis.

- Food production
- Management of health aspects of lab animal facility & diagnosis facility.
- Biomedical research, health education & extension
- Production & control of biological products and medical devices.

INTERACTION BETWEEN HUMAN AND ANIMALS

- Changing the incidence of animal related hazards (e.g. those associated with zoo tourism)
- Role of companion animals and human well being
- New requirement connected with increasing urban and periurban population
- Biomedical applications (e.g. Xenotransplantation)

ROLE OF VETERINARIANS IN ENVIRONMENTAL POLLUTANTS:

Researchers in recent years have drawn attention to the fact that environmental estrogens and other potential hormone disrupting compounds are widespread and persistent in the environment; they are likely to be present in drinking water, plastics, household products and food packaging and in the human food chain. To date, some 60 chemicals have been identified as endocrine disrupters (i.e. exogenous agents that interfere with various aspects of natural hormone physiology). Octylphenol (OP) is one of several compounds found in the environment that possesses estrogen mimicking action in vivo. The potential reproductive and health hazards by such environmental chemicals have generated concern among the scientific community, policy makers and the general public. There are those who claim that declining human male fertility may be due to global pollution with synthetic chemicals, which have very weak estrogenic and or
androgenic potency. There have also been suggestions that, during the last 20 years puberty and human menopause are occurring earlier in humans and endocrine disturbing compounds may be influencing the timing of adult reproductive transition. Using sheep as their animal model, workers in Scotland found that administration of environmental estrogenic chemical (OP) would inhibit foetal follicle stimulating hormone secretion. This provide one explanation of how such chemicals may adversely affect adult reproductive potential.

**NATURAL AND MAN MADE DISASTERS**

- Increasing demand for Veterinary services to respond to non epidemic emergencies such as weather related problems (eg Drought, famines, floods, hurricanes), earth quakes, industrial and nuclear accidents and to epidemics.

Veterinarians can take significant role in public health:
- Investigation epidemiology and control of non-zoonotic, communicable diseases.
- Social behaviour and mental aspects of human-animal relationships, setting up of animal welfare standards.
- Epidemiology and prevention of non-infectious diseases.
- Leadership management & administration of public health and environmental agencies including Government, private and academic institutions.
- Risk analysis, health economics, cost benefit, cost analysis, effective new analysis & other methods to evaluate health care.
- Social context of delivery of veterinary services, especially to human in rural areas who have been traditionally under served by veterinary services who have great potential in preventing infection & zoonotic diseases.

**ZOONOTIC DISEASES**

- Patterns of zoonotic disease will change. During the past few years many zoonotic diseases have occurred as newly recognized (Emerging) or previously recognized(Reemerging) diseases. There are many reasons for the increased occurrence of zoonotic disease including alteration of environment, establishment of human settlements in formerly uninhabited areas, a greater demand for animal protein, intensification of animal production, acceleration of trade in live animals, animal products and other food stuffs.

- The classical example is the present situation of CoVid 19.
- E.coli infection was confined to North America until mid 1990s, now found throughout the world, similarly Salmonellas via eggs have spread enormously world wide since detected in the U.K. BSE has also spread rapidly from U.K to number of countries since 1980s and now threatens to become endemic in certain European countries.
- Porcine reproductive and respiratory syndrome which spread through out Europe in the early 1990s and even in Canada, Mexico and the U.S.A.
- Cold water vibriosis was confined to fish of the Norwegian island of Hitra for some years, but in 1993 it spread to Canada and USA.
- One of the more dramatic development Cyclosporiasis, a coccidium found in migratory birds in central America caused a outbreak of human disease in USA.
- Avian Influenza, which was dominant has now surfaced up and a threat to human life.

**CHALLENGES TOWARDS THE YEAR 2050**

Reinvigorating animal agricultural research is essential to sustainably address the global challenge of food security. The demand for food from animal agriculture is anticipated to nearly double by 2050. Increased demand is due, in part, to a predicted increase in world population from 7.2 billion to between 9 and 10 billion people in 2050 (United Nations, 2013). The increase in population puts additional pressure on the availability of land, water, and energy needed for animal and crop agriculture. During this period, it is also anticipated that there will be significant growth in per capita animal meat consumption related to increasing urbanization and income in developing countries. Global environmental challenges, including global climate change, and the growing threat of disease transmission to and from agricultural animals add further challenges to sustainably meeting the demand for animal agriculture in 2050. Even in a stable world, the animal agricultural research enterprise would be significantly challenged to help rectify the current unequal distribution of animal calories and the need to integrate social science research so as to better understand and respond to changing consumer preferences.

**GLOBALIZATION OF TRADE**

- Globalization of trade has facilitated the spread of food borne infections and diseases, such as BSE in cattle & Bird Flu in poultry. Accordingly, food and
livestock feed need to be closely monitored during production, as well as during handling, processing and distribution. It is not enough blame outbreaks on condition during production, if product control at later stages is substandard. Similarly, the whole chain of responsibilities must be transparent from beginning to end.

Leadership is needed to achieve this, because a disease outbreak in one country cannot be seen as merely a local disaster. It must be perceived as a Global problem. The classic example is recent spread of Bird Flu in South East Asia and some parts of Europe. No country is sufficiently isolated or protected to ensure the population-human and animal- is safe. It is vital for the control and maintenance of the health to have "forward defenses to prevent and control food borne infections and diseases. This process demands an International partnership capable of guaranteeing food quality and food safety programme that are integrated with strategies for public health and sanitary control.

Increasing National and International trade in animals and animal products has led to emergence and reemergence of zoonotic diseases may be the consequence of new patterns in food trade or in some cases.

HIV/AIDS EPIDEMIC
The HIV/AIDS epidemic has also caused an additional challenge to Veterinary Profession in developing countries. More than 90% of the estimated 36 million people living with AIDS live in developing countries. The impact of epidemics in these countries has been greatest in rural areas and has spread to rural areas, where it has impaired food production, including animal husbandry. One of the major challenges for the study group is to propose measures that would ensure a wider understanding of the concepts of the Veterinary Profession. This would require a major cultural change among the health professionals especially Veterinarians, Many of whom have little or no background in public health. Ultimately these changes will have to achieved by modifying the curricula at both the professional and the post graduate levels.

CONCLUSION:
The role of veterinarians in building healthy minds of the country is commendable. Therefore, veterinary profession is a noble profession. Let us keep the light of this profession to glow brightly in future through you fellow veterinarians.

Based on the above facts the veterinary profession has to be treated separately on par with medical profession and not with agricultural sciences.

Former Vice Chancellor,
Karnataka Veterinary and Fisheries Sciences University, Bidar

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