Livestock Brands From The House Of Venky's

**FLORAGEST Bolus**
An Ideal Rumen Ecosystem Enhancer for Better Digestion
Benefits:
- Improves rumen ecology
- Regulates rumen motility
- Relieves ruminal atony & ruminal stasis
- Better feed digestion & nutrient bio-availability
Presentation: Strip of 4 Boli

**FLORAGEST GOLD**
A preferred combination of Prebiotics, Probiotics, fortified with fiber digesting Enzymes.
Benefits:
- Helps to re-establish microflora
- Enhances fiber digestion
- Improves nutrient availability
- Regulates ruminal pH
- Improves productivity and growth
Presentation: 1kg

**AirSURE**
Natural Way to Improve conception.
Benefits:
- Improves Uterine health by increasing uterine secretions
- Helps in reducing uterine subclinical infections
- Improves uterine tone by improving uterine turgidity
- Improves sperm longevity in uterus
Presentation: 225ml

**Bio-Chelated Ventrumin Strong Plus**
Highly Concentrated Bio-chelated Minerals, Stable Vitamins & Maximum Bio-Available 18 By-pass Amino Acids
Benefits:
- Maintains Higher Reproduction Efficacy.
- Maintains Higher Growth & Milk Production.
Presentation: 1kg, 5kg & 25kg
WHAT CAN YOU GAIN FROM USING LESS?

Don’t just do it
Do it right with BIOPLEX®

#MoreWithLess

Trust the world’s largest producer of organic trace minerals and support your herd’s health with BIOPLEX®.

Effective in cow and calf feeds, organic trace minerals support the animal’s defense system and growth as well as your profitability.

Learn more today at ALLTECH.COM/BIOPLEX.

ALLTECH BIOTECHNOLOGY PVT LTD.
No.3, 6th Cross, HAL 2nd Stage, Kodihalli, off Old Airport Road,
Bangalore 560 038 | Tel: +91 80 25251991 | Fax: +91 80 25251974
Email: india@alltech.com

Alltech.com AlltechAP
INDEX OF ADVERTISEMENTS

1. Altech Biotechnology Pvt. Ltd. Title Cover II
2. Anand Animal Health Pvt. Ltd. 27
3. B.V.Bio Corp Pvt. Ltd. Title Cover I
4. Globion India Pvt. Ltd. 23
5. Jain Irrigation Systems Ltd. 28
6. Jaysons Agritech Pvt. Ltd. Title Cover IV
7. Polyglow 4
8. Poultry Expo-2018 22
9. Provimi Animal Nutrition India Pvt.Ltd. 21
10. Trouw Nutrition India Pvt. Ltd. 25
11. Vetoquinol Title Cover III

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

TEJASVI PUBLICATIONS
2-1-444/16, 1st Floor, O.U.Road, Nallakunta, Hyderabad - 500 044.
Ph : 040-2761, 0027 Cell : 98493 68003, 93940 37347
www.tejasvipublications.com
tejasvi.livestockline@gmail.com
POLYGLOV®

VETERINARY - ARTIFICIAL INSEMINATION (A.I.)
POLYETHYLENE (PE) DISPOSABLE GLOVES

POLYGLOV:
The Plus Properties
• Soft • Safe • Hygienic • Good Barrier Properties
• Shoulder Length • Ambidextrous
Useful For:
• Veterinary Practitioners • Stud Farms
• Dairy Industry • Livestock Breeding Farms
• Veterinary Medicine Sales Promotion
Exports:

Created by
THE PEOPLE WHO CARE

POLYGLOV®
NON-WOVEN & PLASTIC DISPOSABLE
Hygienic & Clean Care

LAB COAT PANT
COVERALL SUIT
HEAD CAP
FACE MASK
HAND GLOVE
APRON
SHOE COVER

G. R. POLYPAPERS PVT. LTD.
Regd. Office: 2- C, Miniland, Tank Road, Bhandup (W) Mumbai- 400 078. INDIA
Phones: 00-91-22-2596 5509, 2595 4479. Fax: 00-91-22-2596 2487.
Internet: http://polyglov.com, http://polyglov.net • E-mail: polyglov@vsnl.com
Social Organization and Dominance Hierarchy in Domestic Animals
Aasif Ahmad Sheikh1, Tariq Ahmad Malik2, Bilal Ahmad Ganaie2, Sajad Ahmad Sheikh3, Zahoor Ahmad Pampori1, Ovais Aarif1, Dilruba Hasin1
1 Division of Veterinary Physiology, FVSc & AH, SKUAST-Kashmir, J & K.
2 ICAR-National Dairy Research Institute, Karnal, Haryana.
3 ICAR-Indian Veterinary Research Institute, Izatnagar, UP.
Corresponding Author: Aasif Ahmad Sheikh (aasifvet1@gmail.com)

Introduction
The social organization in animals is characterized by affinity bonds that are responsible for the cohesion of a group. The establishment of dominance determines the position within a social hierarchy, which influences access of the individuals to resources, breeding, protection, freedom of movements and positive interactions (Bouissou, 1974; Orihuela and Galina, 1997). The social behavior of cattle varies with age and maturity. Several studies have reported the effect of social organization on aspects such as feed intake, weight gain, milk yield and estrus expression (Hernandez, 2004). Calves (4.5 months of age) and heifers (18 months of age) with prior experience of regrouping form more stable relationships, fight less and establish dominance relationships more rapidly than animals having no such experience (Veissier et al., 1994).

Social organization
Social organization is a pattern of relationship between and among individuals and groups (Dreachslin et al., 2012). The characteristics of social organization include qualities such as size, sexual composition, leadership, communication systems, etc. (Berman, 2005). The size of the group varies depending on the availability of basic resources such as food supply and access to mates for reproduction. Domestication, selection and controlled breeding over generations has modified and suppressed many “wild type” behaviours. Cattle are highly social animals and engage in complex interactions to communicate dominance, subordination and bonding within the group. Social rank is largely predicted by age and body weight/size (Schein and Fohrman, 1955). Leadership patterns have been found in animals during grazing (Sato, 1982). Cows of higher dominance enter an automatic milking system more often without waiting and spent less time in the waiting area (Lauwere et al., 1996). When individuals enter or re-enter an established group they must establish their social rank within the herd. Sheep form groups and cattle form mobs, the dispersion of which is influenced by forage availability. Lambs follow the ewes but cattle hide their young ones.

Dominance hierarchy
A hierarchy exemplifies an arrangement with a leader who leads other individual members of the organization. A dominance hierarchy is the product of the interactions, often agonistic, among the individuals of a social group that compete for the same resources (Oliveira et al., 2012). Studies of social dominance are important for the management of farm animals because dominance is related to injuries, access to resources and other factors that influence body weight and reproduction, hence farm productivity (Oliveira et al., 2012). The ICR (Interval from calving to the resumption of ovarian activity) increased as dominance order decreased (D=34.5; I=45.0; S =53.1) (Hernández et al., 2013). Dominant cows had a shorter interval from calving to resumption of ovarian activity compared with cows of the remaining social orders.

Dominance hierarchy and feed intake
Even in herds with a stable hierarchy, social rank remains important when limited and/or valued resources such as feed or access to feed are considered. Cows of lower social rank were displaced from the feed bunk more often, particularly at high stocking rates and high ranking cows spend more time at the feeder following the provision of fresh feed (Huzzey et al., 2006; Val-Laillet et al., 2008). A passage width of at least 3 to
3.5 m has been suggested as it allows cows to pass each other whilst others are feeding for good cow flow and to optimize access to feed (Bickert and Cermak, 1997). When one cow feeds, other are motivated to eat as well, meaning that cows tend to feed as a herd (Grant and Albright, 2001). Doubling the amount of feeding space per cow from 0.5 m to 1.0 m resulted in a 57% reduction in aggressive interactions and allowed cows to increase their feeding activity (DeVries et al., 2004).

**Antagonistic interactions**

The following antagonistic behaviours exist among the farm animals:

1. **Retreat** - one animal moves away at the approach of another or runs away when chased by another flight.
2. **Displacement** - one animal walks steadily toward another, which retreats.
3. **Supplant** - one animal takes away another’s resources e.g., food or resting place.
4. **Threat** - one animal directs its nose or horns towards another.
5. **Aggression** - one animal pokes its nose or horns towards another.

(Alados and Escos, 1992)

**Ruminating and lying behaviour**

Cows prefer to ruminate while lying down and it is therefore important that cows are readily able to access a comfortable and inviting place to lie down to maximize rumination time (Cooper et al., 2007). Overcrowded cows spent significantly less time ruminating during a 24-hour period than did cows that were not overcrowded (Batchelder, 2000). The lame cows spent more time lying out of the cubicles, had longer total lying times, and spent less time feeding.

**Social organization and hierarchies in sheep and goats**

Sheep, a more promiscuous species, always tend to maintain mixed-sex groups throughout the year (Sevi and Casamassima, 2009). Sheep move in a compact flock and follow a single leader, but goat herds move forming a thin line when alarmed or chased and, in a herd, goats usually show their higher level of independence (Hafez et al., 1969). In feral goats, large male is dominant and maintains discipline and coherence of the flock (Mackenzie, 1980). Horn size is the rank symbol and can designate dominance without combat. Alarm behaviour is highly developed in goats. In goats that have been isolated from their social group, cortisol concentrations are elevated, which reflects an increase in emotional stress (Kannan et al., 2002). Goats are very gregarious, prefer to stay close together, and individuals are rarely seen apart from the group (Ross and Berg, 1956). In pregnant goats, isolation is stressful and can affect the hypothalamic–pituitary–adrenocortical axis and the sympatho-adrenomedullary system of their offspring (Roussel et al., 2005). During breeding season, females and male goats remain together but in the non-breeding period, females are usually segregated from males, which are isolated or form satellite herds (Blackshaw et al., 2003).

**Social bonds in Goats**

- **Amicable**: lying with bodily contact
- **Neutral**: lying next to each other never with bodily contact
- **Antagonistic**: lying far away from each other

**Social organization and hierarchies in horses**

Dominant individuals may be identified as those which show kick or bite threats. Temperament affects rank; aggressive persistent horses achieve higher rank regardless of other characteristics such as; age, weight, and height. Not only do dominant mares or stallions lead the herd but they are allowed first choice of food and water. Females tend to reject mating with subordinate males, so stallions ranked lowest in the band seldom breed mature mares in estrus. When multiple mares are in estrus, rank influences breeding order. The dominant stallion will choose to copulate with the dominant mare. The dominant mare will chase young or submissive mares away from courting stallions which ensures it to be bred by the best stallion.
Foal rank is positively correlated with the position of their dams in the herd.

Social organization and hierarchies in pigs
Social organisation in the domestic pigs is characterised by;

1. **Teat order** - Piglets become capable of recognizing their positions on the udder.

2. **Dominance hierarchy** - Social organization established in groups of weaned pigs.

   (Signoret et al., 1975)

Abnormal behaviours

1. **Nymphomania.** Such cows behave like bulls, pawing and mounting but refuse to stand for mounting by other cows. It could be an inherited trait. Nymphomania is more common in high-producing dairy cows than in cows of beef breeds (Houpt, 1998). Nymphomania is usually associated with follicular cysts (Houpt, 1998).

2. **Mismothering.** This may be due to the mother having suffered a long and difficult birth and not being able to stand up for suckling. The calf may also be too weak to suckle. Cases of mismothering are common with cows calving in synchrony in intensively managed maternity groups (Albright et al., 1997).

3. **Buller-Steer Syndrome.** This is a common health and economic problem in feedlot operations. The typical buller-steer sexually attracts its penmates who take turns following and mounting the abnormal animal. It does not seem to be associated with rank, and may be due to boredom. When detected, bullers are segregated and treated for injury or illness. Approximately 2% of steers in a feedlot situation are buller steers (Houpt, 1998).

4. **Illness/Disease.** Cattle that are not healthy will show abnormal behavior. Healthy cattle will appear alert, stretch on rising and be vocal. They often vocalize in response to pain or stress (Grandin, 2001). Unwell cattle show little interest in their environment, have dull eyes, sluggish movement, poor grooming and poor appetite.

**Conclusion**
Social organization exerts its influence on feed intake, body weight gain and reproductive performance. Animals should be regrouped on several occasions to prepare them for integration into the main adult herd. To reduce agonistic encounters between animals, more space in the trough during feeding and watering should be provided. Humans can modify behavior by the processes such as castration, spaying and endocrine implants to increase production and ease of handling.

**References**


Bioactive compounds in plants can be defined as secondary plant metabolites eliciting pharmacological or toxicological effects in man and animals. Secondary metabolites are produced within the plants besides the primary biosynthetic and metabolic routes for compounds associated with plant growth and development and not needed for the daily functioning of the plant. Several of them are found to hold various types of important functions in the living plants such as protection. Most species of plants seem to be capable of producing such compounds.

Synthesis and purpose in plants:
Secondary metabolites are produced within the plants besides the primary biosynthetic and metabolic routes of compounds aimed at plant growth and development, such as carbohydrates, amino acids, proteins and lipids. They can be regarded as products of biochemical “side tracks” in the plant cells and not needed for daily functioning of the plant.

Phylogenetically, the secondary bioactive compounds in plants appear to be randomly synthesised. Several of them are found to hold important functions in the living plants. For example, flavonoids can protect against free radicals generated during photosynthesis. Terpenoids may attract pollinators or seed dispersers, or inhibit competing plants. Alkaloids usually ward off herbivore animals insect attacks (phytoalexins). Other secondary metabolites function as cellular signalling molecules or have other functions in the plants. Those plants producing bioactive compounds seem to be the rule rather than the exception. Thus, most plants even common food and feed plants are capable of producing such compounds. However, the typical poisonous or medicinal plants contain higher concentrations of more potent bioactive compounds than food and feed plants.

Main groups of bioactive compounds in plants
Bioactive compounds in plants are classified according to different criteria. An approach based on biological effects is complicated by the fact that the clinical outcome is not exclusively connected to chemically closely related compounds; even chemically very different molecules might produce similar clinical effects. A botanical categorization based on families and genera of the plants producing the bioactive compounds might also be relevant, as closely related plant species most often produce the same or chemically similar bioactive compounds.

According to Croteau et al. (2000) bioactive compounds of plants are divided into three main categories:
(a) Terpenes and Terpenoids (approximately 25,000 types)
(b) Alkaloids (approximately 12,000 types) and
(c) Phenolic compounds (approximately 8000 types)

Tannins:
Structure and classification
Tannins are secondary plant products, found in cell walls or harboured within vacuoles in stems, bark, leaves, flowers, or seeds in dicotyledonous plants (Barry 1989). They were originally recognized and used in the tanning industry for tanning hides into leather due to their ability to bind and cross-link proteins in the hides. Bate-Smith and Swain (1962) proposed a definition for tannins as “water-soluble phenolics having molecular weights between 500 and 3000 that can precipitate alkaloids and proteins” (Mcleod, 1974). Tannins are classified as either hydrolyzable or condensed. Hydrolyzable tannins consist of polyphenols (gallic acid and/or hexahydroxydiphenic acid) ester-linked to a hexose moiety, and they can be hydrolysed by heating with weak acid. In contrast, the condensed tannins can be oxidatively degraded only by hot mineral acid. Condensed tannins are polymers of flavan-3-ol (e.g.catechin) or flavan-3,4-diol (proanthocyanidins) linked by C–C or C–O–C bonds to yield compounds of varying molecular weight (Leinmuller et al. 1991). Condensed tannins are synthesised from precursors from the acetate and shikimic acid pathways, as is lignin. The anabolic pathway was described in detail.
by Waterman and Mole (1994). Condensed tannin polymers vary tremendously in their constituent monomers, stereochemistry, polymer size, and intermolecular linkages, in addition to the dynamics of their location, concentration and composition throughout the life of the plant. These attributes all influence the facility of CT to interact with other molecules. Because of the heterogeneity of their polymerization (linear and branched) and their linkages with other plant constituents, CT are often difficult to separate and quantify. The CT of two species of lotus exhibit differing plant protein binding capacities which is believed to arise from differences in the stereochemistry of their monomers (McNabb et al. 1998).

Role in protein utilization:
The tannins of different plant species have different physical and chemical properties and therefore they have very diverse biological properties. The high affinity of tannins for proteins is due to the presence of great number of phenolic groups. These provide many points at which bonding may occur with the carbonyl groups of peptides. The formation of such complexes is specific, both in terms of the tannin and protein involved, the degree of affinity between the participating molecules residing in the chemical characteristics of each. With respect to tannins, the factors promoting the formation of complexes include their relatively high molecular weight and their great structural flexibility. The proteins that show the most affinity for tannins are relatively large and hydrophobic, have an open, flexible structure and are rich in proline. The complexes formed between tannins and proteins or other compounds are generally unstable (McNeill et al, 1998). The bonds uniting them continually break and re-form. Kumar and Singh (1984) suggested that complexes could come about through four types of bond:

1) Hydrogen bonds (reversible and dependent on pH) between the hydroxyl radicals of the phenolic groups and the oxygen of the amide groups in the peptide bonds of proteins.

2) by hydrophobic interactions (reversible and dependent of pH) between the aromatic ring of the phenolic compounds and the hydrophobic regions of the protein, 3) by ionic bonds (reversible) between the phenolate ion and the cationic site of the protein (exclusive to HT), and 4) by covalent bonding (irreversible) through the oxidation of polyphenols to quinones and their subsequent condensation with nucleophilic groups of the protein. For a long time it was believed that the formation of tannin-protein complexes was owed mainly to hydrogen bonds. However, it is now known that hydrophobic interactions are important.

The main effect of tannins on proteins is based on their ability to form hydrogen bonds that are stable between pH 3.5 and 8 (approximately). These complexes —stable at rumen pH— dissociate when the pH falls below 3.5 (such as in the abomasum, pH 2.5-3) or is greater than 8 (for example in the duodenum, pH 8), which explains much about the activity of tannins in the digestive tract. This reduction in protein degradation is associated with a lower production of ammonia nitrogen in the rumen and a greater non-ammonia nitrogen flow to the duodenum.

Saponin:
Saponins are steroid or triterpenoid glycosides, common in a large number of plants and plant products that are important in human and animal nutrition. Several biological effects have been ascribed to saponins. Extensive research has been carried out into the membrane-permeabilising, immunostimulant, hypocholesterolaemic and anticarcinogenic properties of saponins and they have also been found to significantly affect growth, feed intake and reproduction in animals. These structurally diverse compounds have also been observed to kill protozoans and molluscs, to be antioxidants, to impair the digestion of protein and the uptake of vitamins and minerals in the gut, to cause hypoglycemia, and to act as antifungal and antiviral agents. These compounds can thus affect animals in a host of different ways both positive and negative.

The saponins are naturally occurring surface-active glycosides. They are mainly produced by plants, but also by lower marine animals and some bacteria (Riguera, 1997; Yoshiki et al. 1998). They derive their name from their ability to form stable, soap-like foams in aqueous solutions. This easily observable character has attracted human interest from ancient times. Saponins consist of a sugar moiety usually containing glucose, galactose, glucuronic acid, xylose, rhamnose or methylpentose, glycosidically linked to a hydrophobic aglycone (sapogenin) which may be triterpenoid.
Effects on protein utilization:
Saponins reduce protein digestibility probably by the formation of sparingly digestible saponin–protein complexes (Potter et al. 1993). Endogenous saponins affected the chymotryptic hydrolysis of soyabean protein, particularly glycinin (Shimoyamada et al. 1998). The heat stability of bovine serum albumin was increased by the addition of soy saponin due to electrostatic and hydrophobic interactions. The digestibility of the bovine serum albumin– soya saponin complex was much lower than that of free bovine serum albumin indicating that complexing with saponin had an obstructing effect. Saponins from different sources have been found to be detrimental to protozoa and have been identified as possible defaunating agents in the rumen (Wallace et al. 1994; Newbold et al. 1997). This property could be exploited in treatment of protozoal infections in other animals.

Conclusion:
Tannins are beneficial to ruminants at low concentration because they protect plant proteins from degradation in the rumen, protects the protein from microbial hydrolysis and deamination in the rumen and increases the proportion of dietary amino acids available for post-ruminal absorption. Condensed tannins have been shown to lower soluble protein and ammonia-N levels in ruminal fluid. Saponin-containing plants have been shown to suppress the protozoal population, increase the bacteria and fungi population. Protozoa contributed significantly to intraruminal cycling of microbial nitrogen, increases the efficiency of microbial protein (MP) synthesis. Defaunation increases nitrogen utilization of the ruminant and thus increase in growth and milk production of animal.

References:
Ventral hernia is a term used to describe a hernia that occurs in the abdominal wall other than through a natural orifice. Such hernias usually result from trauma. In horses hernias frequently develop from kicks, but in cattle the most common cause is from a horn thrust. Violent contact with blunt objects of all sorts are many times responsible for ventral hernias. Ventral hernias may occur wherever the abdominal wall is severely traumatized. They are seen high or low in the flank, along the costal arch, or between the last few ribs. They also occur in the ventral abdomen near the midline and higher in the iliac regions.

When a hernia occurs as the result of a severe injury, the site swells quickly. This is due to hemorrhage and/or serum accumulation. Edema develops in the surrounding tissue. The area becomes enlarged and before long it is impossible to palpate the hernial ring. In most cases the ring is beyond reach for rectal palpation. It may thus be difficult to determine the nature of the injury and to confirm the presence of a hernia. This is a handicap in giving a prognosis. If the rent is very large, a very poor prognosis is given for future repair. On the other hand, a large swelling may be related to a rather small hernial opening and may lend itself to repair. In some cases the clinician must wait until the traumatic swelling has reduced before the ring can be palpated. When the tear is big, a large mass of viscera may escape from the abdomen. Occasionally a large part of the small intestine works its way through a small rent in the wall. This presents the danger of intestinal strangulation. In most cases the hernial sac is made up of peritoneum and skin, comparable to hernias through the natural orifices, but the peritoneum may also rupture and then the sac consists of skin only. The inflammatory process causes an enteritis in the exteriorized bowel and inflammatory exudate gathers in the sac. This condition is usually not severe enough to threaten the general health of the animal. In most cases the inflammation slowly subsides, but adhesions commonly develop, particularly when the peritoneum is also ruptured.

The repair of ventral hernias is not unlike the surgical procedure described for umbilical hernias. Where large tears of the wall have occurred, the chances of successful repair are poor. This is particularly true when the ventral abdomen is involved. It is best to wait until inflammation has subsided before surgery is undertaken. Traumatized tissue will not hold sutures well. However, when a large amount of small intestine has escaped from a very small opening, prompt action is required. The small opening is usually easily closed, and the patient may develop intestinal complications if surgery is not performed early. Early diagnosis of the
nature and extent of the injury is important so that surgery will not be delayed in emergency cases.

Surgery for ventral hernia is usually done under general anesthesia. The skin is carefully incised and the peritoneum, if present, is also opened. The viscera is freed of adhesions and returned to the abdominal cavity. If the ring is small it may be necessary to enlarge it with a blunt-pointed bistoury (kelotomy) to replace the viscera. Omentum, if present, is excised. The edges of the ring are trimmed to provide a raw surface for healing. If the hernial edges are rounded it may be necessary to separate the tissue into layers and to suture them separately. Heavy suture material is often used in large rents to prevent the tearing of tissues. Umbilical tape offers a flat rather than round shape and is less likely to saw through the tissues. Mesh made of different materials has been used for the repair of ventral hernias. It is particularly useful for round openings which resist apposition of their edges. The technique to be followed is best governed by the characteristics of the case at hand, and no hard and fast rules can be given.

The method described by Johnson appears good. Polypropylene mesh (Marlex mesh, Phillips Petroleum Co., Bartlesville, Okla.) is placed retroperitoneally or within the abdominal cavity. A second piece is placed over the defect externally (subcutaneously). The two pieces are joined by staple-type sutures of polyethylene (Marlex braided suture, Phillips Petroleum Co.).

Hernias of the left flank in cattle may contain the rumen and can attain an enormous size. They do not affect the general health of the animal. Animals with large hernias of this type have been known to reproduce repeatedly without obvious trouble. These huge hernias are inoperable. Hernias with a small aperture and large content of viscera are seen on both flanks of cattle as a result of horn injuries. The early diagnosis and treatment of cattle are important. Surgery may be performed under the influence of tranquilizers, epidural anesthesia, and paravertebral blockade. Heavy umbilical tape can be used for suture material and the wall is closed in layers. The subcutaneous tissue is sutured with catgut. Ventral hernias are not uncommon in sheep. They are comparable to those found in cattle. At times, hernias are seen involving a large part of the lateral or ventral wall. In these cases successful treatment is unlikely, and the economic value of the sheep seldom justifies surgery. Ventral hernias in swine are not frequently seen. Their occurrence is mostly confined to small pigs.
Peste des petits ruminants (PPR)

Peste des petits ruminants (PPR) is an acute or subacute viral disease of goats and sheep characterized by fever, necrotic stomatitis, gastroenteritis, pneumonia and death. Goats are more susceptible to this disease than sheep, hence it is known as goat plague. It is a highly contagious disease of small ruminants causing high mortality especially kids of less than six months age group. The causal virus is *Morbillivirus* genus in the family Paramyxoviridae, preferentially replicates in lymphoid tissues and epithelial tissue of the GI and respiratory tracts and produces characteristic lesions. The disease has been reported in entire Indian subcontinent. Transmission is by close contact, and confinement seems to favor outbreaks. Secretions and excretions of sick animals are the sources of infection. Spread of infection occurs efficiently, during religious festivals when the high demand for animals increases the trade in infected stock. Cattle, buffalo, and pigs are dead-end hosts for PPR, because they do not exhibit any clinical disease and do not transmit the virus to other in-contact animals of any species.

**Clinical signs**
- Sudden rise in body temperature to 40°–41.3°C (104°–106°F)
- Dull coat, dry muzzle, congested mucous membranes, and depressed appetite
- Serous nasal discharge initially, later, mucopurulent and gives a putrid odour to the breath
- Erosive stomatitis lesions in the mucosa of lips, gums, dental pad, palate, cheeks, tongue
- Profuse enteritis, dehydration, emaciation
- Coughing, difficulty in respiration
- Abortion in pregnant animals
- Morbidity and mortality rates are higher in young animals than in adults.

**Prevention and Control**
- No specific treatment. Antibiotic treatment for 5-7 days for secondary bacterial complications in affected animals
- Isolation and treatment of affected animals
- Cleaning and disinfection of animal sheds
- Vaccination of goats at the age of 3-4 months and booster once in a year
- Purchase of goats from disease affected farms and disease affected areas should be avoided

Blue tongue

It is an infectious but non-contagious, viral disease of small ruminants. The disease is caused by genus orbi virus, family Reoviridae. Natural transmission takes place through insect vectors viz. *Culicoides* and *Aedes* species, and sheep ked *Melophagus ovinus*. Cattle act as a subclinical carrier for blue tongue.

**Clinical signs**
- Pyrexia
- Nasal discharge, frothing, marked salivation, highly congested and cyanotic nasal and oral mucosa, lameness
- Odema of head, tongue – cyanotic at last stage of the disease
- Abortion rarely
- Highly congested and cyanotic nasal and oral mucosa, epithelial excoriation in the oral cavity and purplish discoulouration of the interdigital space, pasterns and coronets
• Morbidity rate may be 50% or more whereas mortality rates vary widely.

Prevention and Control
• No specific treatment. Antibiotic treatment for 5-7 days for secondary bacterial complications in affected animals
• Isolation and treatment of affected animals
• Vaccination of goats at the age of 3-4 months and booster dose one month later once in a year before monsoon season
• Clearing of vegetation near the animal house
• Controlling mosquitoes near the animal house
• Avoiding purchase of goats from disease affected farms and disease affected areas

Enterotoxaemia (pulpy kidney disease)
It is an acute disease of goats of all ages, but primarily of kids. It affects animals in a high state of nutrition on a lush feed, grass or grain. Morbidity rates seldom exceed 10% but mortality rate approximates 100%. It is caused by Clostridium perfringens type D which normally inhabits the alimentary tract of goats. When the animals are over fed, the organism proliferated rapidly in the intestines and produces lethal quantity of toxin.

Clinical signs
In kids and lambs, the course of illness is very short, often less than 2 hours and never more than 12 hours and many found dead without manifesting early signs. Symptoms include voiding of greenish pasty faeces, staggering, recumbency, opisthotonus, and acute, clonic convulsions with frothing at the mouth. A history of sudden death of several kids with good body condition justifies a tentative diagnosis of enterotoxaemia.

Prevention and control
• As sudden death is caused by the bacteria, treatment is not of much value.
• Avoid over feeding of kids and adults

Carbohydrate rich ration should not be over fed to the goats because excessive carbohydrate feeding act as predisposing factor for the occurrence of enterotoxaemia
• Dams may be vaccinated with Killed enterotoxaemia vaccine 6-8 weeks and and 2-4 weeks before kidding for providing passive immunity to kids for enterotoxaemia

Tetanus
It is an acute, infectious disease manifested by tonic convulsions of the voluntary muscles. In goats, it commonly follows routine operations such as docking, castration and even vaccination. Clostridium tetani form spores which are capable of persisting in soil for a number of years. The portal of entry is usually through deep, puncture wounds.

Clinical signs
• Stiffness of limbs
• Lock jaw
• Saw horse like appearance
• Erect ears, opisthotonus, followed by death due to asphyxiation

Prevention and control
• Tetanus antitoxin is usually administered but is of little value when the signs have appeared. In highly endemic areas tetanus toxoid can be administered to the dams for passive immunization of kids

Paratuberculosis (Johne’s disease)
It is a chronic, wasting disease caused by Mycobacteria paratuberculosis and characterized by progressive emaciation in spite of normal feed intake, intermittent enteritis. Due to the chronic nature of the disease, it is very difficult to diagnose the disease at early stage. The disease causes severe economic losses in infected flocks. As the progress of the disease is slow, it is mostly seen in older animals. No successful treatment for paratuberculosis.
INTRODUCTION: Livestock sector in India plays a vital role in livelihood, nutritional and environmental security and aids in the growth and development of Indian economy. However, one of the major constraints, the livestock sector has faced in developing countries, is the scarcity of feed resources resulting in low productivity and poor growth and reproduction of animals. According to the 12th five year plan there is shortage of dry fodder (10%), green fodder (35%) and concentrate (33%) in India (Dominic et al. 2016). Shortage of feed resources in India has been documented by various organizations but several locally available feed resources used for feeding dairy cattle are not taken into account. The expected high demand for animal products could only be met in a persistent manner through the efficient use of crop residues and non-conventional feed resources that do not compete with human food. These include industrial by-products, horticulture and vegetable wastes, local grasses, tree leaves, weeds and other non-conventional feed resources. Coffee pulp is the main by-product of coffee industry that can be used as an unconventional feed in ruminant nutrition.

COFFEE PRODUCTION: Coffee is one of the most important agricultural commodities in the world. It belongs to the family Rubiaceae, which produce seeds that are used for coffee preparation. There are three common species of coffee: robusta, arabica and liberica. The estimated production of coffee is 312,000 MT, the Arabica and Robusta break up are 95,000 MT (30%) and 217,000 MT (70%) respectively. The area under coffee plantations in India has increased by more than three times, from 120.32 thousand hectares in 1960-61 to 397.147 thousand hectares in 2015-16. Most of this area is concentrated in the southern states of Karnataka (54.95%), Kerala (21.33%) and Tamil Nadu (8.18%). Productivity has also improved from around 567 kg/Ha in 1961 to around 876 kg/Ha during 2015-16. These facts on coffee production in India show us that coffee pulp is an abundant product that is produced in coffee-growing countries that usually results in pollution of water bodies. Appropriate use of coffee waste in the animal feed could help in decreasing the pollution created by coffee processing and furthermore it aids in supply of optimum nutrients to the animals, which are underfed in hilly areas of South Indian states where availability of feeds and fodder is limited.

COFFEE WASTE: Coffee pulp, one of the principal by-products of wet processed coffee which constitutes almost 40% of the wet weight of the coffee berry and is rich in carbohydrates, proteins, minerals, and appreciable quantities of tannins, caffeine and potassium. When coffee is extracted in water, most of the hydrophobic compounds, including oils, lipids, triglycerides, and fatty acids remain in the grounds, as do insoluble carbohydrates like cellulose and various indigestible sugars. Coffee pulp is the main by-product of coffee processing industry. Coffee pulp is essentially composed of carbohydrates, proteins, amino acids, mineral salts, tannins, polyphenols, and caffeine. Agro-industrial residues/wastes are generated in large quantities throughout the world. Their non-utilization results in loss of valuable nutrients and environmental pollution. The composition of the coffee pulp makes it suitable for feeding in ruminant animals, especially in hilly areas where coffee plantation prevails and also the non availability of conventional feeds and fodders in such areas, justifies its use in ruminant diets.

### Table 1: Chemical composition of Dry coffee pulp and Coffee hulls

<table>
<thead>
<tr>
<th>Parameters (%)</th>
<th>Dry coffee pulp</th>
<th>Coffee hulls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dry matter</td>
<td>69.16 ± 0.31</td>
<td>88.4 ± 3.2</td>
</tr>
<tr>
<td>Crude protein</td>
<td>18.12 ± 0.66</td>
<td>9.3 ± 1.0</td>
</tr>
<tr>
<td>Ether extract</td>
<td>5.71 ± 0.02</td>
<td>0.5-3</td>
</tr>
<tr>
<td>Crude ash</td>
<td>16.63 ± 0.41</td>
<td>6.5 ± 2.2</td>
</tr>
<tr>
<td>Crude fiber</td>
<td>33.63 ± 0.06</td>
<td>37.2 ± 7.6</td>
</tr>
<tr>
<td>Nitrogen free extract</td>
<td>15.89 ± 0.02</td>
<td>-</td>
</tr>
<tr>
<td>Total digestible nutrients</td>
<td>63.75</td>
<td>-</td>
</tr>
<tr>
<td>Digestible energy</td>
<td>8.36 KJ/kg (2.0 kcal/kg)</td>
<td>-</td>
</tr>
<tr>
<td>Metabolizable energy</td>
<td>9.61 KJ/kg (2.3 kcal/kg)</td>
<td>-</td>
</tr>
<tr>
<td>Anti-nutritional factors</td>
<td>Value</td>
<td></td>
</tr>
<tr>
<td>Caffeine (% DM)</td>
<td>0.82 ± 0.10</td>
<td>0.90 ± 0.05</td>
</tr>
<tr>
<td>Tannins, generic (% DM)</td>
<td>0.92</td>
<td>-</td>
</tr>
</tbody>
</table>

FEEDING VALUE OF COFFEE WASTE

The pulp from the dry method is fibrous, while that from wet processing has much better feed value. Coffee pulp from the wet method can be fed to lactating dairy cattle at levels below 20% of the diet without affecting milk
CONCLUSION

Researchers have shown that silage improves the nutritional quality of waste and byproducts of coffee. Silage can be made with the feed, with; 4-6% of the molasses from sugarcane or with a mixture of chemicals. Based on the experimental data the diets of ruminants i.e. cattle and sheep, waste and by-products of coffee can be successfully used up to 10 to 30%. Major limiting factor for the use of waste and by-products of coffee by the animals is because to their caffeine content, tannin and alkaloids that affect their health and negatively affect the palatability of the diets. But certain processing techniques such as drying, silage, physical (percolation), chemical (alcohol extraction) or microbiological (fermentation with Aspergillus niger) methods contribute to lower levels of caffeine and tannins of waste and byproducts of coffee.

REFERENCES

Potential Roles of Tree leaves in Ruminant Nutrition

Salik Nazki¹, Rohit kumar², Preeti³, Munazah Shahzad⁴ and Z.A.Kashoo⁵

¹ College of Veterinary Medicine, Chonbuk National University, South Korea-54596; ²Department of Animal Husbandry, Jammu Division, Jammu & Kashmir-180001; ³ Animal Nutrition Department, NDRI, Karnal, Haryana-132001; ⁴Division of Veterinary Parasitology, Indian Veterinary Research Institute, Izatnagar, Uttar Pradesh-243122, ⁵Div. of Vet. Microbiology, SKUAST-Kashmir, J&K-190006.

Introduction: A major constraint to livestock production in the tropics is the seasonal fluctuation in forage yield and quality from grasses. There is usually adequate forage of fair to good nutritive value in the wet season, but in the dry season available forage from natural pastures are usually inadequate both in terms of quality and quantity to meet even the maintenance requirements of livestock. Trees and shrubs have been shown to be capable of providing high quality fodder in the dry season. The role of fodder trees and shrubs in the diet of animals is considered particularly important in countries like India where small land holdings and large ruminant densities result in an especially severe problem of feed availability. Generally these leaves are used for feeding sheep and goat and sometimes to cattle during periods of fodder crisis.

Nutritive Values of Tree leaves

Generally, the dry matter content of the various tree leaves varies from 20 to 40%, with 10-15% crude protein on a DM basis (Singh., 1982). Subabul has higher values of 20 - 23%. Ether extract (EE) fraction is also fairly high compared with grasses and hays. Contain comparatively low percentage of crude fibre compared with grasses and hays. Younger tree leaves before flowering have more protein contents than mature leaves after flowering. The crude protein content decreases and the crude fibre content increases with increasing age of tree leaves (Singh., 1981). Their fibre is complex and highly lignified at maturity. Palatability, digestibility, and nutritive value of tree leaves decreases as the leaves advance in maturity. The tree leaves contain 8–33 % CP, 1–19 % EE, 11–50 % CF, 0.2–3.0 % Ca and 0.1–0.3 % P. The digestibility coefficient of dry matter, crude protein, crude fibre, ether extract and nitrogen free extract in tree leaves ranged from 40–75, 28–83, 24–82, 32–65 and 51–85 %, respectively (Rai et.al. 2007). Calcium content of tree leaves is 2-3 times more than that of cultivated fodders or grasses. The phosphorus content is, in general, low, resulting in a wide calcium to phosphorus ratio.

• Tree fodders are rich protein and mineral contents as compared to grasses and thus can be supplemented to low quality grasses (Aganga et al., 2003).

• Plants take up mineral readily during early growth, but as growth accelerates, dry matter accumulates more rapidly than minerals, contents of most minerals therefore fall with advancing maturity (Jones and Wilson., 1987).

• Leucaena spp; G. sepium and Acacia spp. - fix atmospheric nitrogen - now an important component in the farming system in many countries in the tropics.

• Ruminants are mostly fed on low quality roughages - addition of tree leaves to ruminant diets improve the utilization of low quality roughages mainly through supply of nitrogen to rumen microbes.

Tree fodders are important source of nutrients for small ruminants. Goats prefer to browse on small bushes rather than grazing but due to the limitation of bushes tree leaves form a major part of their diet. Most of tree leaves are rich in crude protein and TDN contents which can meet the requirements of goats. Ailunthus excelsa, morus alba can even fully satisfy the maintenance requirement of goats and sheep, respectively. The leaves of Ficus bengalensis are consumed in greater quantities by goats.

Deleterious principles

Presence of Anti nutritional factors like mimosine in Leucaena leucocephala, triterpinoid derivatives (azadirachtin, nimbidin) in Azadirachta indica and phenolics in most of the leaves limit their use as animal fodder. The presence of tannins adversely affect the dry matter digestibility and use of nutrients, and an inverse relationship exists between tannin content and crude protein digestibility (Lohan et al. 1980). Because of their inhibition of proteolytic and cellulolytic enzyme, protein utilization is affected by inclusion of leaves (Silanikove et al 2001); however, the inclusion of a limited quantity of tree leaves in animal feed is recommended to improve rumen function and productivity (Osakwe et al 2004). Level of tannins are higher in the early stages of growth (Negi, 1977). Restricting the level of feeding to <30% of the total DM intake is recommended in cattle and sheep. Goat can consume at higher level because they have tannase enzyme in their saliva which detoxify tannins. It’s always better to feed wilted tree leaves than freshly lopped leaves as wilting helps in reducing the ANF as well as increasing palatability. The presence of tannins is an advantage as they protect the proteins from excessive microbial degradation and make these
more available in lower gut. Some trace minerals, such as fluorine, molybdenum, and selenium, are reported to be present in toxic amounts in some tree leaves (Gupta et al. 1982).

**Kinds of leaves that can act as potential feed:**

**Mulberry leaves** (*Morus indica*)

Mulberry leaves have an appreciable potential as protein source in small ruminants feeding, thus leaves of mulberry can also be used as main feed for small ruminants (Kandylis et al., 2008). It contains 23.5% and 18.2% CP with 12.8% and 23.1% ash contents at young and mature stages of growth, respectively (Malik and Chughtai, 1979). DCP content is 7.8% and TDN is 48.4% in them. The biomass yield of fresh leaves is around 15 to 22 tonnes/ha/year.

**Pipal leaves** (*Ficus religiosa*)

It is a big spreading tree and is found in all parts of the country, remain green throughout the year. Palatability and nutritive value are not very good. DCP is 7.05%, TDN is 48.22%. DCP content fairly high as compared to conventional fodders while TDN value is lower. The Copper content is highest in *F. religiosa* leaves. (Murugan et al., 2012). The leaves of peepal (*Ficus religiosa*) have DM 36.3%, OM 83.5%, CP 9.3%, EE 2.9%, CF 26.1%, NFE 45.3%, TA 16.6%, NDF 47.6%, ADF 33.1%, HC 14.4%, 2.4% Ca, 0.22% P, 1.46% Tannin and 0.57% Oxalate, on DM basis (Niranjan et al., 2007).

**Banyan leaves** (*Ficus bengalensis*)

This tree is large spreading and grows throughout India. Banyan tree leaves play a vital role in feeding of goats and other ruminants in lean periods. The leaves are consumed in greater quantities by goats as compared to bullocks. It has 3.81% DCP and 49.78% TDN.

**Subabul** (*Leucaena leucocephala*)

Subabul is a vigorous rapidly growing drought tolerant tree and can be grown under wide range of agro climatic conditions. Yield is 50 tonnes/ha/annum. It has DCP 11.73% and TDN 51.97% in cattle, 16.03 and 61.58 in goats. Leaves are rich in carotene and calcium and provides a valuable source of protein, energy and Sulphur for the rumen bacteria. Seed of subabul contains mimosine 4.47% which causes loss of hair or wool leading to skin lesions and salivation. It should not be fed excessive to ruminants as it affects thyroid function and reduces the level of tri-iodothyronine and tetra iodothyronine leading to goitre. Mimosine on degradation products 3,4-dihydroxy pyridine – cause poor growth, alopecia, swollen and rough coronary bands, lameness, mouth and oesophageal lesions, depressed thyroxine levels and goitre. It also contains tannin 4.4%. Goats can utilize subabul efficiently than sheep. Supplementation of *Leucaena leucocephala* to small ruminant provided higher concentrations of rumen metabolites, which naturally improved rumen function and digestibility (Bonsi et al., 1995).

**Beri leaves** (*Zizyphus jujube*)

Beri leaves are used as a conventional fodder for sheep and goat. They are comparatively more palatable than pipal leaveshaving high CP (18.6%) but digestibility coefficient only 36.

**Cassava leaves** (*Manihot esculenta*)

It is a tuber crop extensively grown in Kerala and parts of Tamil Nadu. Cassava leaves are rich in essential amino acid especially lysine with high carotene content and thus can be used to supplement cereal diet which are deficient in lysine. It has DCP 8.3% and TDN 45.5%. Leaf meal contains 7.6 mg of HCN/100g. For growing calves 2.27 kg of partially dried tapioca leaves could replace 0.68% of GNC. For milch cattle ration 50% of GNC can be replaced by tapioca leaf meal.

**Bamboo** (*Dendrocalamins strictus*)

Bamboo plant is used as fodder especially during drought when other feed crops are scarce. Large quantities of leaves become available during harvesting for paper manufacture. It has DCP 9.3% and TDN 48.8%. The leaves in tender stages are relished by the animals and can form a part of the ration. Bamboo leaves tend to have higher protein levels in the winter and lower levels during spring and summer. Total non-structural carbohydrates in bamboo leaves decreased throughout the growing season, and then remained stable or increased during winter. Feeding 4-5 Kg of green leaves of bamboo in its raw form to the cow after parturition helps in early dropping of placenta by animal within half an hour of feeding.

**Babul** (*Acacia nilotica*)

The CP content of babul leaves is 23% and DM yield of tree leaf fodder is 0.2 to 2.0 ton/ha/year (Rai, et al., 2007). As a fodder source, babul pods and leaves are fed to livestock. Pods and leaves are protein rich feedstuff, generally dropped during the dry season and thus providing nutritive feed during scarce periods. Babul is N-fixing legume that can be grown with grass or cereal crops in order to enhance their N value. It contains high levels of condensed tannins (from 5.4% in pods to 15.8% in twigs) that may hamper protein digestibility and, hence, animal performance. Other compounds such as alkaloids, Saponins have Antinutritional effects.

**Agathi** (*Sesbania grandiflora*)

It is also a leguminous fodder tree. Leaves have DCP 16.89 %, TDN 61.80 % and isvalued as a fodder for feeding of cattle and goats, particularly for dry season. Annual yield is 27 kg of green leaf/tree/year. Cattle fed...
5 kg fresh leaf/day showed increased milk yield by 8%. Supplementation with *Sesbania grandiflora* of goats fed guinea grass hay increased intake by 25% and supported a positive N balance.

**Neem leaves** (*Azadirachta indica*)

Neem plant remains green throughout the year and is drought resistant. Neem leaves contain appreciable amount of protein, minerals and carotene (185 g/g) and adequate amount of trace minerals except zinc. It is consumed by camels, goats and cattle in drought. Fallen leaves can also be fed but are less palatable. Leaves contain about 8 % protein, DCP- 6.19%, TDN 52.51% and ME 1926 kcal/kg.

**Glyricidia** (*Gliricidia sepium*)

Glyricidia is second most important multipurpose tree legume after *Leucaena leucocephala* in the humid tropics. It is one of the few forage tree species capable of leaf yields comparable to those of leucaena and it can grow on a wider range of soils tolerating low pH. The yield is 2 t/ha/year to 20 t/ha/year. *Gliricidia sepium* leaves have a high feeding value, with CP 20-30%. Animals seem to refuse glyricidia leaves on the basis of smell due to volatile compounds released from the leaf surface. Leaves are also relatively low in tannins compared with other forage tree legumes. The toxicity can be seen due to the conversion of coumarin to dicoumerol by bacteria, a haemorrhagic compound, during fermentation. Wilting glyricidia leaves for 12-24 h before feeding - increase intake.

**Banana leaves** (*Musa spp.*)

Banana leaves are usually fed when the trees are chopped following fruit harvesting. Leaves are palatable, relatively rich in crude protein and have laxative effect. Cattle and goat relish leaves but diarrhoea was apparent within a week when only leaves were fed. When fed to bulls with paddy straw and oil cake, there were no digestible troubles.

**Jack fruit** (*Artocarpus heterophyllus*)

Jack fruit trees are widely spread in tropical countries and are extensively used for feeding cattle, sheep and goats. It is fed particularly in Kerala, Maharashtra, Orissa and West Bengal. Leaves have DCP 4.8% and TDN 43.3%. Leaves should be supplemented with either wheat bran or rice polish as the leaves alone do not meet maintenance requirement of the animals.

**Kachnar** (*Bauhinia variegate*)

Kachnar is a very common fodder tree cultivated in India. It is palatable to cattle, sheep and goat. Leaves have DCP 7%, ME 1.5 Mcal/kg DM. The tannin content is fairly high around 1.5%.

**Khejri** (*Prosopis cineraria*)

Khejri is a major fodder tree in semi-arid regions of India. In some areas of Rajasthan and Gujarat, there is an established tradition of preparing leaf meal from *Prosopis cineraria* and conserving it for use in summer. The leaves have a relatively high crude protein content (15-16%) while digestibility is usually low. Low crude protein digestibility of *P. cineraria* had been attributed to the presence of high levels of tannins 160 mg/g, with a protein precipitating capacity of 10.6%. Annual production of forage is 190 kg/tree.

**Oak** (*Quercus incana*)

Tree leaves contained 10.2% CP and 92-95% OM. Fermentation of oak leaves with *Sporotrichum pulverulentum* decreased the contents of total phenols and condensed tannins by 58 and 66% respectively in 10 d. The protein precipitation capacity decreased by 65%.

**References:**

Unlock the POWER

RumiKon™ is a globally-acclaimed rumen health solution having unique 3-way action of rumen conditioning by true buffering, neutralizing and alkalizing effects. It has proven efficacy to improve ruminal health and thus increasing production and overall welfare of dairy animals.

Improves rumen health, enhances production

Cargill enables the success of our partners to help the world thrive.

Provimi Animal Nutrition India Pvt. Ltd.
Tel: 080-3368 0002 Email: info@cargill.com www.provimi.in
FIRST EVER EXPO IN LUCKNOW

POULTRY EXPO - 2018
( Opportunity for all)

Indira Gandhi Pratishthan A/c.

15-16 SEPT. 2018
at Indira Gandhi Pratishthan A/c.
Opp. Nirvahan Hospital, Benind Wave Cinema Multiplex, Gomtinagar,
Vibhuti Khand, Lucknow

Contact:

POULTRY & LIVESTOCK INDUSTRY SOCIETY
Regd. Office: D.No.2-1-447/7, O.U.Road, Nallakunta, Hyderabad - 500 044.
Ph: 040-2761 0027, (M): +91 98493 68003, 98310 24002
Admn. Office: 7/1B, Hazra Road, Edcons Court, 3rd Floor, Kolkata - 700 026.
Ph: +91 90510 44004. Email: polisy33@gmail.com
Boostmin™
For More Milk & Better Fertility

Benefits:
- Effectively replenishes the mineral deficiency
- Improves milk production & profitability
- Propionate Chelation technology ensures higher bioavailability of minerals

Recommended Usage:
- Adult animal: 30 - 50 g per animal per day
- Heifer: 20 g per animal per day
- Calf: 10 g per animal per day

HIGHLY EFFECTIVE AGAINST SEVERE INFECTIONS

Respiratory Infections
- Pneumonia, Bronchopneumonia, Haemorrhagic
- Septicemia (HS), Contagious Bovine Pleural
- Pneumonia (CBPP)

Mammary Infections
- Mastitis

Uterine Infections
- Metritis, Endometritis, Pyometra

4th Generation Fluoroquinolone

Møfoi®
Moxifloxacin Injection 100mg

Dose
5 mg / kg b. wt. by IM or IV route

PREVENTIVE AND SUPPORTIVE THERAPY FOR MASTITIS

Proud The magic bullet®

Benefits
- Prevents from ROP and Milk fever
- Reduces incidence of Mastitis and Metritis
- Accelerates Mastitis treatment response
- Faster recovery of Milk yield
- Ensures early onset of estrus to maximize reproductive benefits

Dose
- Mastitis Therapy: 2 Bolus BID for 6 days
- Mastitis Prevention: 1 Bolus BID Post-calving for 24 days

A box of 12 strips of 4 bolus each

GLOBION INDIA PVT. LTD.
Vasavi Gold Stone, 2nd Floor, Survey No. 25, Near Military Football Ground, Trimulgherry, Secunderabad - 500 015, Telangana, India | Phone: +91-40-2799 0398, Fax: +91-40-2799 0399
Email: customercare@globionindia.com | Website: www.globionindia.com
Globally animal-agriculture is facing enormous challenges such as urbanization; reducing land available for cultivation; climate change; growing water scarcity; competition from biofuels for grains; and soil degradation. Meanwhile, developing nations and the growing overall world population are demanding more animal protein. As a proactive industry association, CLFMA is leading the agenda of sustainably increasing animal protein production in the country through focusing on the following top three priorities.

• **Increase input efficiency** – Contrary to the popular myth that the increasing consumption of animal protein is at odds with sustainability, livestock sector is an important contributor to sustainably meeting the world’s food demand. Indian livestock industry, as it enters an exciting growth phase, needs to focus on ways they can produce more from less. Be it feed, water, energy or antibiotics, the Indian livestock industry is making all efforts to judiciously use these inputs to maximize the conversion efficiency. For example, through investing in genetic improvement of milch animals, their yields can be boosted significantly when complementing with balanced ration.

• **Reducing environmental footprint of animal protein** – In most developing countries, crop and livestock farming complement each other. Diversifying the feed raw materials for meat production can play an important role in environmental sustainability. By-products from crops; biomass of various kinds; and slaughterhouse wastes (e.g. meat and bone meal) are being utilized by the livestock industry, which rids the ecosystem of burgeoning waste burden. Further, poultry manure or litter, for example, can be used as manure and thereby can replace chemical fertilizers to some extent in modern intensive agricultural production systems. Additionally, with serious concern globally and in India on the use of fossil fuels, it is important for India, which produces about 450-500 million tonnes of biomass per year, to effectively use them. More research is being pursued in this direction as India still needs to capture more value out of biomass particularly for animal feed. Further, new technologies are being explored to find out alternative sources of proteins (e.g. insects, algae) for feed so that our dependence on the traditional raw materials (maize and soybean) is reduced significantly.

• **Saving precious natural resources** – Recent advancements in animal nutrition are helping the industry maximise feed conversion ratio with less and less inputs. Without these technologies or innovations, far more cultivable land area is needed to produce enough feed grain to cater to the increasing demand from feed sector. So, the ultimate result of these innovations is the reduction of conversion of pristine natural landscape and forests into croplands. To achieve increased animal performance while minimising feed costs, new nutritional strategies, feed additives (e.g. enzymes), must be employed to optimise feed conversion and digestibility.
Our mission
feeding the future

TOXO®-MX

• Supports intestinal barrier function
• Maintains animal performance during exposure to mycotoxins
• Supports animals' natural mechanisms to cope with mycotoxins

Trouw Nutrition India Pvt. Ltd.,
Plot No. 16, 1st Floor, Jayabheri Enclave,
Gachibowli Village, Serilingampally,
Hyderabad, Telangana – 500032
www.trouwnutritionasiapacific.com
The 1st CLFMA CFO Forum discusses how the sector is transforming from a financial perspective; global factors driving the markets; challenges in supply chain; addressing commodities price risks; and implications of disruptive technologies such as IoT and blockchain for the Indian livestock industry.

India, Mumbai, XX May 2018: CLFMA is organizing its first “CFO Forum” on 30 May 2018 at Mumbai for senior-level professionals from various sub-sectors of livestock industry such as poultry, dairy, feed and aquaculture.

B Soundararajan, Chairman of CLFMA of India said “Despite the uncertainty in growth in agriculture, which is predominantly dependent on monsoons, share of livestock sector in the GVA (Gross Value Added) in agriculture GDP rose from 22% in 2011-12 to 26% currently. However, one must not get misguided as these numbers may sound ostensibly small or insignificant. This sector is the lifeline for rural Indians in terms of employment to millions directly and indirectly and its impact is much greater in the socio-economic perspective than one can imagine. This forum aims to offer in-depth analysis of the sector from a financial angle- opportunities and challenges for bankability; attractiveness for investments; macro-economic factors and also global trends in commodities and currency markets as well as the Venture Capitalists and Private Equity players’ point of view.” he further added.

SV Bhave, Deputy Chairman, CLFMA of India opined “This sector is one of the major contributors towards fulfilling the growing food (protein) demand and economic prosperity of the nation. Hence it must remain efficient and sustainable to ensure overall economic growth, poverty reduction, improving food and nutritional security by enhancing affordability of protein. This forum brings renowned experts from the financial world who will shed light on all the above aspects besides RoI, de-risking the business and addressing the challenges in commodities supply chain. We believe this is one-of-its-kind opportunity for exchanging ideas and mutual learning for the industry professionals.”

“We are thrilled to announce the first edition of the CFO Forum and the response so far is quite impressive. CLFMA will continue to pursue several initiatives like these to bring more value to not only its members but for the entire animal-agribusiness sector.” Raghavan Sampathkumar, Executive Director commented.

About CLFMA of India:

CLFMA of India (www.clfma.org) is the apex organization and the voice of the country’s dynamic livestock sector. Having had illustrious leaders such as Adi Godrej at its helm as Chairmen in the past, the 50-year old industry association is recognized as one among the highly reputed in India. It currently has over 230 members representing diverse subsectors of animal protein value chain including feed manufacturing; poultry, dairy and aquaculture business; animal nutrition and health; veterinary services, machinery and equipment; processing, distribution and retailing of meat; and ancillary services such as banking.
Test with Confidence™

IDEXX Milk Pregnancy Test
IDEXX Rapid Visual Pregnancy Test

Anand Animal Health Pvt. Ltd.
Authorized Distributor of IDEXX Laboratories Inc.; USA
for Livestock, Poultry and Dairy
Fast - Accurate - Reliable - Confidential

Diagnostic kits for Livestock and Dairy

Science@Work
During Summer Animal Health is Important:
“Use Jain Cooling System”

Telangana Address:
1-1-782/B/5, Opp. Park, Near Canara Bank, Gandhinagar, Hyderabad - 500080.
Ph: 9440797833, 9440797816, 9440797825, 9440797802

Andhra Pradesh Address:
Plot No. 302, Nivas Enclave, Sriram Nagar, 11th Street, Near RTO Office, Guntur,
Ph: 9440797807, 9440797868, 9440797840, 9440797845

Email: jainhyderabad@jains.com    Website: www.jains.com

Toll Free: 18005997899
Extreme heat during summer is an emerging issue for livestock and it will be worst when relative humidity will exceed 90%, resulting in lowering milk production and also threatening their health and productivity. Heat stress also disturbs follicular development and estrous cycle resulting in lower fertility.

Clinical Signs of heat stress:
- Rise in body temperature. In most cases, temperature exceeds 103° F and may reach up to 110° F.
- Rise in heart and respiration rate
- Open mouth breathing/Panting
- Restlessness but soon animal becomes lethargic, dull, unable to move, tends to lie down.
- Animal moves to shade.
- Feed intake reduced and water intake increased
- Increased thirst, production of saliva while feed intake reduced.
- In severe cases, open mouth breathing which may be accompanied by collapse, convulsions and terminal coma leading to mortality.

Management
- Provision of abundant supply of clean and cool water. Water troughs or containers should be kept clean and should be large enough that all animals must have easy access.
- Fans in combination with water sprinkling facility are the best cooling option during summers.
- Water showering, splashing, sprinkling and fogging of water must be done 4 to 5 times during the hottest part of the day on animals and inside the shed which reduces heat load and heighten productivity due to evaporative cooling.
- In drier climates, misters along with fan systems are also used over the beds to provide evaporative cooling of the air in the barn.
- Proper shelter should be provided during period of extreme temperature especially for very young, old, sick and pregnant animals. Aluminium orgalvanized steel are ideal roofs for shelters as these materials are good in reflecting radiative rays of the sun.
- Shelter space should be sufficient for all animals to be able to lie down as overcrowding undershelter resulting in smothering.
- Handling and transportation of the animal should not be done in extreme heat unless it is necessary. If necessary, it should be done during cooler part of the day like early morning or evening.
- Proper care of the animals should be done which are more prone to heat stress such as young animals, dark coloured animals, sick animals, high producing dairy and heavy weight animals (over 450 kg body weight).
- High quality forages and balanced ration with sufficient dietary mineral and vitamin supplementation should be given to the animals to minimize the effect of heat stress.
- Frequency of feeding should be increased and intake of sufficient cool water is the most significant strategy to combat heat stress.
- Supplementation of dietary sodium and potassium should be done to increase milk yield during this critical period.
- Proper deworming and vaccination should be followed.
- Proper acaricidal spray should be done on animals and also in sheds especially in corners and cervices as ectoparasites infestation increases during summer.
- Proper wallowing arrangements for the animals in clear water ponds should be made on the farm.
- Fresh animals should be carefully monitored as they will eat less during the period of heat stress and it will compromise the immune status of animals and increase the susceptibility to metritis, mastitis and other diseases.

Heat stress can challenge the productive and reproductive potential of the in dairy animals. Implementing proper breeding programs, feeding management, better cooling strategies at farm can assist to reduce some of the harmful effects of heat stress.
Aflatoxins are a group of mycotoxins produced by Aspergillus moulds. Aflatoxins can be produced both in the field while the crop is under growth as well as during harvesting, storage and transport of raw materials and animal feeds. Aflatoxin B1 (AFB1) is the most well-known and researched mycotoxin due to its highly toxic and carcinogenic effects both for farm animals and humans. It is also the most common mycotoxin among the various aflatoxins produced.

Among all the mycotoxins, AFB1 is the most problematic to dairy animals due to the bioconversion of aflatoxin B1 to aflatoxin M1 (AFM1) in liver and then the excretion into milk. Aflatoxin M1 can cause liver cancer in animals and humans and hence regulated in most countries. The degradation of AFB1 is minimal in the rumen. On top of this AFM1 is as toxic as AFB1 to dairy animals.

Impact of aflatoxins in dairy animals:
- Transference of residues into the milk (AFM1)
- Reduction in milk yield and performance
- Reduction in microbial protein synthesis
- Reduction in immunity – Increase susceptibility to infection, milk quality
- Liver damage
- Carcinogenicity

According to the European Union regulatory authorities, AFM1 levels in milk for human consumption cannot exceed 0.05 parts per billion (ppb) which means complete feedstuffs are limited to 5 ppb when used in dairy diets. FDA (US) regulations are 10 times more relaxed than EU with AFM1 levels not to exceed 0.5 ppb in milk. India follows FDA limits. Any milk that contains AFM1 above the regulatory limit is considered unfit for human consumption and should be discarded.

Monitor the risk and take action
The economic impact of aflatoxins in the dairy industry is highly significant. An integrated approach including a proactive monitoring action plan for forages and grains and farm management can prevent such economic losses. If a dairy farmer found out that his feedstuff is contaminated with mould and mycotoxins, here are five steps that you can take to protect not only the health of your animals, but also the safety of your milk and human health.

Work with your milk company, nutritionist and feed supplier
Having a positive result for AFM1 in milk is a very frustrating experience but can be solved rapidly with an integrated and consistent team approach. The available technology is able to detect AFB1 in the cereals and feed as well as AFM1 in the milk allowing for a better determination of the source and early diagnosis of the risk.

Understand the level of contamination in milk
The primary step you can take to protect your milk supply and start to define your action plan
is to monitor aflatoxin levels in milk. A dairy cow secretes about 1% to up to 6% of the aflatoxin consumed in the feed into the milk. As aflatoxin M1 in milk is quite stable, the level in milk will help you to back calculate the levels of total aflatoxin in the feed.

**Contribution of feedstuffs**

Monitoring of grains is very critical as this fraction of the diet contributes the most to the total AFB1 intake. Both silages and corn grain can harbor aflatoxin, but don’t forget to include by-products and other purchased feedstuffs which were originated in heat-stressed areas or are stored for longer periods of time after the analyses. (Ex: Some corn by-products as corn distiller grains and gluten feed can contain up to 3 times the level of aflatoxin in the original corn raising the total aflatoxin levels in the total diet). A special attention should be given to the ideal method of silage production as well as TMR protection.

**Critical points of contamination**

The identification of the critical risk points for mould growth and mycotoxin contamination in your dairy operations, and the good management of silage and feed can prevent additional mycotoxin production. Special and the more frequent monitoring of high moisture raw materials should be done to avoid rapid mould growth and mycotoxin production. Identifying the initial symptoms in dairy animals associated to mycotoxin contamination can help you define the preventive strategy.

**Take action**

Since AFB1 levels in feed of less than 20ppb is needed to control AFM1 in milk, controlling AFB1 in feed is very critical. Appropriate actions need to be taken in this regards:

- Reduce the use of contaminated feed – Once you identify the main ingredients which are contaminated
- Use alternative clean forages and raw materials – This can be accomplished with alternative available forages and grains, such as alfalfa hay/silage, wheat, barley, commercial protein supplements which are tested negative for aflatoxin. Make sure you work with your nutritionist to maintain energy and protein balance to meet the cow’s maintenance and production requirements.
- Use a proven large spectrum mycotoxin binder. Supportive strategies as the use of a mycotoxin binding product, should be added to the feed to alleviate the effects of mycotoxins to the animals and to reduce the transfer of aflatoxin M1 to the milk. Founded on a high selection in vitro research followed by extensive in vivo validation and a strict quality control process, TOXO-MX, is a smectite-based clay which has been proven to be highly effective in mycotoxin control due to a high capacity, high affinity and high selectivity towards Aflatoxin B1.

**Conclusions**

To conclude, aflatoxin M1 presence in milk is of public health concern and hence all the efforts should be made to keep the levels below the recommended levels. Such efforts need an intergraded approach and all the critical points of entry of aflatoxin B1 into feed chain should be monitored and controlled. The bioconversion of aflatoxin B1 to M1 in the liver depends on many factors and in India it is recommended to keep M1 levels below 0.5 ppb.
ONE18: The birthplace of ideas

[BENGALURU, India] – True to its name, ONE: The Alltech Ideas Conference 2018 kicked off by showcasing some of today’s most innovative ideas, all the way from the gene level to disruptive changes to the future of food and how we produce it. Often described as a nexus of global agriculture and the premier business conference in the region, the thought-provoking presentations firmly established ONE18 as the birthplace of life-changing ideas.

The conference, held May 20–22, 2018, welcomed 3,504 attendees from 76 countries in its 34th year. One hundred speakers gave 153 presentations, 2,044 guests attended the International Dinner and the conference welcomed 205 ONE Club members, 101 journalists and eight startup pitches as part of The Pearse Lyons Accelerator. The unique late-stage, agri-tech accelerator run by Alltech and Dogpatch Labs aims to address a diverse set of challenges facing agriculture today.

To achieve innovative change, it takes leaders with the ability to see what others cannot, something both Leonardo da Vinci and Dr. Pearse Lyons, Alltech’s late founder, had in common, said Dr. Mark Lyons, president of Alltech.

“He and Dad ‘happened to things,’ as Dad put it,” he said. “And that thing was called ‘life.’ Sometimes life happens to us. These two individuals seemed to impact life as much as it impacted them.”

That is why, for the first time in the conference’s history, Alltech bestowed a double award recognizing Dr. Pearse Lyons.

“He was constantly encouraging us to be the best we could be for those around us so that they could flourish and become the best they could be,” said Mark, reflecting on Dr. Lyons’ goal that Alltech should be built on passion, excellence and fun. “He wanted them to live with those values he had, and that excellence, something that he and my mother shared — maybe she even more so.”
The **Alltech Medal of Excellence**, Alltech’s highest distinction, was awarded to Dr. Lyons for his work as a visionary scientist. As an entrepreneur and a tireless innovator, Dr. Lyons utilized his scientific expertise in yeast fermentation and his acute business sense to revolutionize the animal feed industry through the introduction of natural ingredients to animal feed. In the past 10 years alone, his scientific achievements have been listed in more than 300 patents.

Additionally, he was recognized with the **Alltech Humanitarian Award** for having a boundless philanthropic spirit. The award is bestowed annually to someone of strong character who uses their platform to positively influence and inspire those around them.

“We cannot replace Dr. Pearse Lyons, nobody can,” said Mark. “But if we start to think like him, if we can get 10 people, 100 people, 1,000 people thinking like him, imagine what we can achieve together.”

**Beth Comstock**, former vice chair of General Electric, shared three strategies to embrace and create innovative change. Change, she said, starts with giving yourself permission, making room for discovery and embedding learning — and failure — into your operating system.

“I have a confession to make,” said Comstock. “I call myself a change-maker, but I have to tell you — I really don’t like change. “But, the reality is,” she continued, “like change or not, we have to be ready for it.”

**Dr. Majid Fotuhi**, neurologist and neuroscientist, shared his incredible story of growing up as a young man with a thirst for knowledge while trying to escape Iran during the Iran-Iraq War. An expert in the field of memory, Alzheimer’s disease, concussion, ADHD and increasing brain vitality in later life, he detailed how his journey to Johns Hopkins University and Harvard University has empowered him to teach others how to take better care of their brains.

**Dr. Rodolphe Barrangou**, CRISPR expert and professor at North Carolina State University, discussed the potential for the controversial gene-editing technology to revolutionize food production and agriculture.

**Dr. Mark Lyons** explored the several different ways his father, Dr. Pearse Lyons, compared to the visionary Leonardo da Vinci, including the themes of “curiosity,” “demonstration,” “sensation,” “smoke,” “art/science,” “the body” and “connection” from the book “How to Think Like Leonardo da Vinci” by Michael Gelb.

**Professor Robert Wolcott** shared how to develop foresight to survive in an ever-changing market.

“If a customer is telling you they want something, guess who else they are telling?” Wolcott asked the audience at ONE18. “Your competition. So, how do you find out what the customer wants before they want it?”

The clinical professor of innovation and entrepreneurship at the Kellogg School of Management at Northwestern University told attendees the secret to surviving long-term in a disruptive industry.

“We must ask better questions,” he said.

Now in its 13th year, the **Alltech Young Scientist** program returned to reward university students for their innovative scientific research. The world’s largest agriscience program of its kind culminated at ONE18, where eight finalists-four graduate students and four undergraduate students—presented their research to a panel of international judges.

The undergraduate winner of $5,000 and a fully funded Ph.D. program at the university of her choice is **Leesa-Joy Flanagan**, representing the University of Adelaide in Australia. Her work focused on the effects of different sources of undegradable dietary protein on lamb growth, daily weight gain and voluntary feed intake.

The graduate winner of $10,000 and a fully funded postdoctoral position is **Saheed Salami**, representing the University of Catania in Italy. His research investigated cardoon meal as a novel feed and its effect on lamb performance, rumen function and meat quality.

The 2018 Pearse Lyons Accelerator participants include:
• **ENTOCYCLE:** From the United Kingdom, the world’s first environmentally controlled, fully automated system to produce industrial levels of Black Soldier Fly protein.

• **SMARTBOW:** From Austria, a SMART eartag sensor to monitor the activity and position of each animal. Provides farmers with information to make reliable decisions.

• **EggXYt:** From Israel, technology that allows hatcheries and chicken breeders to detect the gender of chicken embryos.

• **VENCE:** From the United States, virtual fencing and autonomous animal control. Vence enables management and monitoring of livestock via smartphones.

• **PEN/POINT:** From the United States, a combination of real-time data and nutritional breakthroughs to tackle Bovine Respiratory Disease for healthier cattle and a safer beef supply.

• **Adentro:** From the United States, technology that naturally activates bio-immunity in plants by switching on its defense genes.

• **Truly:** From the United States, personalized supplement programs backed by nutrigenomics research. Designed to help reduce the risk of chronic diseases and to meet daily nutrient needs.

• **Alltech SMART Dairy:** From Canada, a program designed to deploy Alltech’s nutrition and ag-tech breakthroughs to farms via nutritionists.

“Six of the 10 participants last year were listed as top 100 agri-tech companies in the world,” said Aidan Connolly, chief innovation officer at Alltech. “That is indicative of the companies applying.”

Connolly noted that last year’s participants in The Pearse Lyons Accelerator were able to access 28 new markets and generate a total of $50 million in qualified leads.

This year, ONE18 also featured a wealth of inspiring events, including:

• **ONE Fun Run:** Attendees from all over the world gathered together to run through the campus of Transylvania University in memory of Dr. Pearse Lyons.

• **International Dinner:** A night of stories and song welcomed our ONE attendees from 76 countries.

• **Movie showing of “Food Evolution”:** Attendees met at the Kentucky Theatre for a special showing of “Food Evolution” and a panel discussion on the GMO debate and the importance of science in feeding the world.

• **ONE Table Talks:** Attendees gathered around Lexington for interactive dinners with our ONE18 speakers.

• **Alltech Craft Brews & Food Fest:** More than 5,000 people, 325 unique beers and ONE great time came together in celebration of five years of the festival.

• **Kentucky Night Goes ’60s:** Dinner, dancing and Kentucky Ale® made for a memorable night of fun with friends from across the globe.

Dr. Aman Sayed, Alltech regional director of South Asia and managing director of India, said 43 people from South Asia attended ONE18 to experience how ideas and technology can revolutionize the agriculture industry. ONE is not just a conference, he said, but a meeting that offers a foundation for a better future.

“The animal industry on the Indian subcontinent is growing and embracing technologies in business,” said Sayed. “Customers were particularly excited by The Pearse Lyons Accelerator session.

“This conference of ideas offers a convenient platform to interact with industry leaders and speakers from across globe,” he continued. “We all should experience the ONE conference.”

The conference will return to Lexington, Kentucky, USA, May 19–21, 2019.

Missed a speaker or want to watch a replay of ONE: The Alltech Ideas Conference? The Alltech Idea Lab gives you the chance to hear talks from the inspiring leaders and future thinkers from ONE18. Access to the Alltech Idea Lab is complimentary, requiring only registration.

Plenary sessions are now available. Interactive focus sessions will be available for viewing on June 29.
Young Scientist Award

Focus Session

Focus Session
Aquaculture Meeting

Bill Northey at Alltech One

Dr. Mark Lyons, President and Chairman of Alltech with Dr. Rodolphe Barrangou

Beth Comstock during Plenary session

Dr. Majid Fotuhi addressing the gathering at Plenary session
Prof. Robert C. Wolcott at Dr. Lyons family receiving Alltech Medal of Excellence

Aidan Connolly addressing the gathering Dr. Mark Lyons in Plenary

Plenary Session
Pearse Lyons Accelerator Session

Alltech India Team with Customers
About Alltech:
Founded in 1980 by Irish entrepreneur and scientist Dr. Pearse Lyons, Alltech discovers and delivers solutions for the sustainable nutrition of plants, animals and people. With expertise in yeast fermentation, solid state fermentation and the science of nutrigenomics, Alltech is a leading producer and processor of yeast additives, organic trace minerals, feed ingredients, premix and feed.

Our guiding ACE principle seeks to develop solutions that are safe for the Animal, Consumer and the Environment. Our more than 6,000 talented team members worldwide put this purpose to work every day for our customers.

Alltech is a family-owned company, which allows us to adapt quickly to emerging customer needs and to stay focused on advanced innovation. Headquartered just outside of Lexington, Kentucky, USA, Alltech has a strong presence in all regions of the world. For further information, visit www.alltech.com/news. Join us in conversation on Facebook, Twitter and LinkedIn.
India, Mumbai, XXX May 2018: CLFMA organized its first “CFO Forum” in association with NCDEX IPFT for senior-level professionals from various sub-sectors of livestock industry such as poultry, dairy, feed and aquaculture. The CLFMA CFO Forum witnessed expert speakers offering deeper insights on the prospects and potential of the sector from a financial perspective.

B. Soundararajan, Chairman of CLFMA of India opened the forum by emphasizing the vital role of livestock industry being the lifeline of rural India. He urged the members of the industry especially CFO’s to think strategically with a long-term vision. G Chandrashekhar, noted policy commentator and senior journalist offered a global outlook on various commodities and key drivers that are to be tracked on a regular basis. He predicted an imminent rate hike by US Fed possible due to upward trend continuing in the crude prices.

Ashish Modani from ICRA spoke on the macro-economic factors impacting the industry while explaining about exports particularly, bovine meat. With the livestock industry contributing to 8.5% of the employment and 4% of the GDP, this sector must focus on the quality of the overall industry infrastructure particularly processing and cold storage.

The importance of risk reduction to ensure a stable cash flow and profitability was highlighted by Rahul Ghosh from NCDEX IPFT. He emphasized on the need to follow a policy-based structure approach to optimize the risk ratio. He also mentioned that price volatility is the biggest risk in our business. M Krishna Rao from SBI focused on bottomline being key for any business; priority sector lending by connecting to the right persons in need; and diversity beyond crop loans where livestock sector; and how digital technology enables efficient loan processing.

Speaking about various nitty-gritties of GST, Raghavan Ramabadrin from Lakshmikumaran & Sridharan enlightened the audience about tax compliance and how GST enables seamless flow of credit in both goods and services across borders. Articulating his passion, Ashish Mantri of Abhay Cotex shared his experience of getting funded by VC & PE players and stated that alternative proteins will lead the next wave of revolution in food and feed. He said big picture thinking, global business model, innovation & collaborations will attract investment and enable effective asset utilization.

Sharing interesting insights on blockchain technology, Sudhir Chaudhary of Auxesis Group...
how innovations and evolving technologies help improve efficiency and safety in transactions for example, smarter contracts enabling faster and safer transactions. Dr D Ravindra of NABARD stressed the difference between viability and bankability and mentioned that socio-economic and environmental parameters are becoming more and more important in the process of evaluating potential projects for financing.

Summarizing the entire event, S V Bhave, Deputy Chairman of CLFMA stressed on efficiency and far-sighted approach for the CFOs and concluded the forum by saying that livestock industry is poised to continue on its upward growth trend.

Commenting on the program, Raghavan Sampathkumar, Executive Director of CLFMA said “Livestock sector deserves more attention, budgetary allocation and parity with crop-based agriculture. We appreciate the support from NCDEX IPFT for organizing this event successfully.”

About CLFMA of India:
CLFMA of India (www.clfma.org) is the apex organization and the voice of the country’s dynamic livestock sector. Having had illustrious leaders such as Adi Godrej at its helm as Chairmen in the past, the 50-year old industry association is recognized as one among the highly reputed in India. It currently has over 230 members representing diverse subsectors of animal protein value chain including feed manufacturing; poultry, dairy and aquaculture business; animal nutrition and health, veterinary services, machinery and equipment; processing, distribution and retailing of meat; and ancillary services such as banking.

About NCDEX: National Commodity and Derivatives Exchange Ltd (NCDEX), one of the leading commodity Exchanges in the country has started series of initiatives to educate and inform stakeholders about the commodity market, different stages of post-harvest activities management and benefits of using various hedging tools like Futures and Options.

These initiatives are specially designed programs which provides information about how to link with Commodity exchange and how to get benefits through Farmer Producer’s Organizations (FPOs). NCDEX has continuously been conducting many capacity building meetings and training programs with FPOs to explain the benefits of trading on the exchange platform. Beside risk mitigation and improved price discovery, the Exchange has also helped many FPOs with improved and transparent storage and warehousing facilities. As of April 2018, around 75,000 farmers have traded on the NCDEX platform through 71 FPOs, and the FPO national footprint has now penetrated to 12 States.

NCDEX actively reaches out to stakeholders in the value chain including farmers, students, and corporates on various topics related to commodity markets and educates them on how to fetch better price realization for their agri-produce, thus enhancing their income.
PRESS RELEASE

CLFMA beams optimism at ‘The Feed Additives Event 2018’ with interesting insights on trends that impact global livestock industry

The three-day event covered everything from the “Role of the animal protein industry in ensuring India’s food and nutrition security” to the “Livelihoods and economic progress the sector has made/created this year”

India, Mumbai, XX May 2018 – At the Feed Additives Event 2018 last week, new innovations and ideas on improving efficiency, sustainability and social acceptance on the contributions of the livestock sector in Food, Health and Nutrition, livelihoods, economic growth were discussed. Also, discussed are the opportunities and challenges for the animal protein sector including busting myths about the Livestock industry in Asia.

Raghavan Sampathkumar, Executive Director of CLFMA of India represented the Indian Livestock industry at Feed Additives Events 2018 and put forth India’s opinions as a sector influencer about the current landscape and the future of the animal protein industry. Some exclusive current trends he shared include:

India is a unique and diverse market: India’s age old culinary traditions are unique and we now have the opportunity to leverage this diversity. This is a huge investment opportunity for multinational companies, if they understand our diversity well and the fact that there is no need to compromise on taste or health, they can grow with us.

In 2016-17, the per capita income of Indians had grown by 9.7 per cent to Rs 1,03,219. The animal feed industry contributes a major portion to the overall GDP of India.

Raghavan Sampathkumar, further added, “It’s great to be able to come along today and meet likeminded people showcasing their achievements and thoughts on the way forward for the global livestock industry. Through the Feed Additives Event 2018, we had the ability to incubate new ideas and turn them into practical initiatives on the ground which is vital to the prosperity of the livestock industry as a whole. Most influencers have demonstrated the ability to turn ideas into sustainable solution. This event was a great opportunity for the stakeholders to show what they do and we would like to highlight that today CLFMA is continuously exploring solutions for the century’s greatest challenges such as malnutrition, safe and quality food production, and environmental sustainability.”

To know more about the event, click on: [https://www.feedadditives-global.com/](https://www.feedadditives-global.com/)

About CLFMA of India:
CLFMA of India (www.clfma.org) is the apex organization and the voice of the country’s dynamic livestock sector. Having had illustrious leaders such as Adi Godrej at its helm as Chairmen in the past, the 50-year old industry association is recognized as one among the highly reputed in India. It currently has over 230 members representing diverse subsectors of animal protein value chain including feed manufacturing; poultry, dairy and aquaculture business; animal nutrition and health, veterinary services, machinery and equipment; processing, distribution and retailing of meat; and ancillary services such as banking.

About Raghavan Sampathkumar:
Raghavan Sampathkumar is currently the Executive Director of CLFMA of India. Raghavan is a seasoned food and agribusiness leader with a 360-degree understanding of the Geo Political, Environmental, Socio Economic, Techno - Commercial and Cultural perspectives of Agri Food value chain. He worked in various subsectors including agro inputs, international trade, biotech,
In terms of growth, the region particularly South Asia and South East Asia are growing relatively faster than their neighbours. Observing the depth and range of conversations, a few points emerged clear and I present those as crisply as possible here.

1. **Feed security is oft-neglected concept:**
   While the entire world is aware of the importance of food security for survival of the human race, often we forget the underlying issue that animal protein is an integral part of our diets and it needs to be affordable too. When food prices at the consumer or wholesaler levels rise, everyone seems to be highly charged. However, prices of feed ingredients and raw materials are, for long and continue to, remain volatile. This doesn’t always raise the alarm among the stakeholders. But, imaging the cascading effect of price escalation in meat and other protein that are power-packed with nutrients.

2. **Alternative feed ingredients are becoming affordable and attractive:**
   Owing to intensive research on feed formulations and technological advancements in using alternative feed ingredients such as algae, seaweed and other biomass in the recent years are bearing fruition. Worldwide, more focus is being given to ensure these feed ingredients that are not mainstream right now, will be widely used in the near future so that the prices of traditional raw materials can be kept at an optimal level. Further, some of the ingredients are environmentally-friendly too. So, they are really promising and this particular segment is set to evolve further with time.

3. **Sustainability is now a business-mandate:**
   More and more evidence start emerging that it makes economic and commercial sense to invest in improving the sustainable models of production and doing business. For example, to get protein, we need to feed animals, protein. Then we need to extract protein from the waste to use it again in the feed and that closes the loop. This is a simpler narration of the protein cycle but this can be applied to any material that is used as feed raw materials.

4. **Food safety is a shared responsibility:**
   As I repeatedly mention that food safety is a greater responsibility that transcends organizational and sectoral boundaries. Hence, every link and every entity in the food chain must understand their responsibilities and act accordingly. For example, media must be cautious and scrupulous to first understand the truthfulness of any story or claim that is being made by anyone. Since consumers today are getting heavily influenced by social media, their perceptions get shaped and based on which, their opinions are formed on any subject or issue. This ultimately resonates in public policy making impacting the entire value chain.

5. **Consumers are becoming more demanding but more confused as well:**
   It seems to be an interesting trend that the consumers are expecting more from the industry in terms of transparency on how food is produced until it reaches their plates. However, they seem to be more confused about it as they are bombed with information from every corner. Ultimately, at one point they seem to raise their hands up in the air and say “hey, I just don’t get it”. It is the responsibility of the food industry and all concerned to ensure their questions as well as myths and unfounded claims are addressed appropriately through all possible channels.
“In the next decade, nutritional security must be given top priority by the policy makers beyond just increasing food production and the livestock sector is poised to play a major role in it” said B Soundararajan, Chairman of CLFMA of India, commenting on the announcement of the US$200 million grant by the World Bank to India for addressing malnutrition among children. The funding is said to be predominantly for the National Nutrition Mission aka POSHAN Abhiyaan, an overarching scheme for holistic nourishment of vulnerable sections of the population.

“The time has come for us to focus on holistic nutrition and health of the billion-plus population and make concerted efforts towards reducing malnutrition particularly among children. They are our future and we need to ensure they remain our top priority while making policies at the Central and State levels”, commented Soundararajan.

For example, India’s per capita egg consumption – 63 per person a year - is only a third of the recommendation by the National Institute of Nutrition. Already several State governments, under their policy initiatives to address malnutrition, are already supplying eggs in their mid-day meal schemes for school children. “Eggs are packed with essential nutrients and are one of the wholesome and healthiest foods especially for children. By including an egg in the mid-day meals every day, the problems of under-weight, wasting and stunting among school children can be addressed effectively. We are surprised as to why there are many other States that are yet to include eggs in their mid-day meal schemes” he wondered.

Similarly, at 4.4 kg per person a year, India has one of the lowest meat consumption figures globally. Chicken meat, fish and seafood contain several essential amino acids, which aid in muscle, bone and brain development as well. “Animal protein (meat, milk and egg) is one of the easiest and most affordable means to achieve wholesome nourishment. They perfectly compliment plant proteins as our country has such a unique culinary heritage of over thousands of years that combine both vegetarian and non-vegetarian foods perfectly while not compromising health for taste or vice versa. While children that belong to the poorer sections of the society need nutritious diets, the wealthier ones need to be educated about healthy eating and balanced nutrition”, opined Soundararajan.

He further added “Our country enjoys such a demographic dividend that most others can only imagine. It is the advantage of having a greater share of young population. We need to leverage it to the fullest extent in the next few decades. We cannot afford to let it pass by not addressing the roadblocks. But for that holistic and inter-sectoral approach in policy making is vital. We need to be promoting innovative technologies that not only improve crop yields but inherent nutritional composition as well. Policy makers and regulators must take a balanced, logical and long-term view while evaluating innovations including genetically modified crops. Simultaneously, we need to step up consumer education and create awareness about how food is really produced. Of late, there has been a significant increase in negative propaganda by some vested interests against the food industry as a whole and consumers are heavily influenced by their half-truths and unfounded claims. What these groups refuse to understand is all these have profound impact on the health and nutrition of people ultimately.”

Soundararajan concluded by saying “While several global funding agencies and other non-profit organizations are willing to support us in our fight against malnutrition, we must continue to review our current food, agriculture, and health policies for their effectiveness and their impacts on the ground. It must be regular, unbiased and rigorous. At CLFMA, we are concerned not only about our industry (livestock) but the country’s overall nutrition security, economic growth and prosperity in a larger perspective. We continue to work with diverse stakeholders to strongly advocate for holistic policies where agriculture, food, health and nutrition sectors meet.”

CLFMA of India is the apex association or the voice of the country’s dynamic livestock sector. Having had many illustrious leaders such as Adi Godrej at its helm as Chairmen in the past, the 50-year old industry association is recognized as one among the highly reputed in India. It currently has over 230 members representing diverse subsectors of animal protein value chain including feed manufacturing; poultry, dairy and aquaculture business; animal nutrition and health, veterinary services, machinery and equipment; processing, distribution and retailing of meat; and ancillary services such as banking.

CLFMA OF INDIA
111, Mittal Chambers,
11th Floor, 228, Nariman Point,
Mumbai - 400 021
Tel : 91 22 22026103
Fax : 91 22 22880128
Website: www.clfmaofindia.org
PARTNER IN REPRODUCTION MANAGEMENT

Vetomin™
A True Glycine Chelated Minerals formula

- Helps in timely estrus, maintenance of pregnancy & smooth parturition
- Reduces repeat breeding incidences

Available in 1 kg, 5 kg & 25 kg

Vetoquinol India Animal Health Pvt. Ltd.
Unit No. 801, Sigma, Hiranandani Business Park, Pwai, Mumbai - 400 076, India.
Customer Care: +91-22-61322609 • Email: consumer.services.india@vetoquinol.com
Website: www.vetoquinol.in
For optimum digestibility of fiber in the fodder/feed

FIBERZYME™

Unique SSF enzyme complex to improve feed efficiency and performance by digesting the fiber effectively.

www.jaysonsagritech.net