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Baani Milk Producer Company Ltd.

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Vitamin E	275 mg
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Magnesium Glycinate	6600 mg
Copper Glycinate	1600 mg
Ferrous Glycinate	1750 mg
Cobalt Glycinate	175 mg
Iodine as POTASSIUM IODIDE	360 mg
Calcium Glycinate	25.5%
Phosphorus	12.75%
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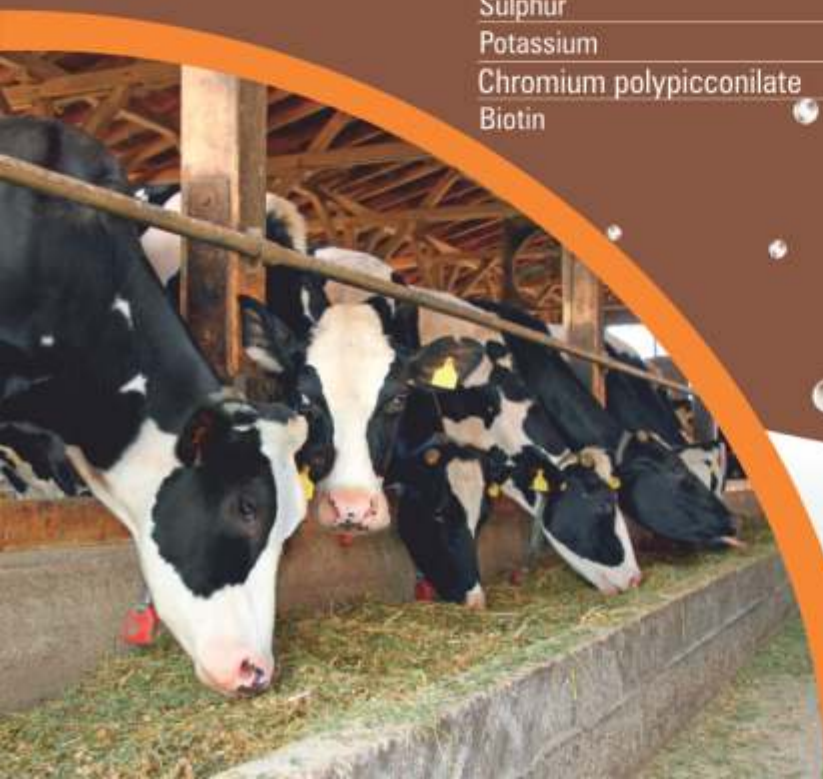
Daily Cattle : 50gm daily
Sheep & Goat : 5-10gm daily
or as advised by Veterinarian.

PACKAGING

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From the Pen of Chief Editor



Driving Profitability: Innovations in Milk Production Management

India's dairy industry has a rich history of dairy farming, and its profitability has become a significant concern for dairy farmers. Innovative approaches and technological advancements have revolutionized milk production management in India, enabling farmers to drive profitability and meet the evolving demands of consumers. Precision livestock farming (PLF) is a technology-driven approach that involves monitoring and managing livestock with advanced sensors, data analytics, and automation. This data-driven approach has significantly improved milk production efficiency and reduced losses, driving profitability for dairy farmers. Artificial Intelligence (AI) and Machine Learning (ML) algorithms have gained traction in the dairy industry for their ability to analyze large volumes of data and derive actionable insights. AI-powered systems can predict milk yield, identify potential health issues, and optimize feeding strategies based on historical and real-time data. Machine Learning algorithms can analyze factors such as genetics, nutrition, and environmental conditions to recommend precise management practices that enhance milk production. By leveraging AI and ML, dairy farmers in India can make data-driven decisions and fine-tune their management practices, thereby increasing profitability and sustainability. Smart feeding systems have emerged as a game-changer in milk production management, using automated feeders equipped with sensors and monitoring devices to provide customized diets to individual animals based on their nutritional requirements. These systems not only improve milk yield but also reduce costs associated with feed, leading to higher profitability. Biotechnology has revolutionized the dairy industry by enabling farmers to enhance the genetic potential of their livestock. Artificial insemination (AI) and embryo transfer techniques can introduce superior genetics into the dairy herd, resulting in higher milk production. Genetic selection tools such as genomic testing and marker-assisted selection make it easier to identify animals with desirable traits, such as high milk yield, disease resistance, and adaptability to local conditions. In addition to focusing on milk production, farmers in India are increasingly exploring value addition and diversification opportunities to boost profitability. Value addition involves processing raw milk into various dairy products, such as yogurt, cheese, butter, and ice cream, which have higher profit margins compared to raw milk. By investing in processing infrastructure and marketing, dairy farmers can capture a larger share of the value chain and earn higher returns. Diversification into allied activities such as organic farming, biogas generation, and compost production from animal waste can provide additional sources of income while promoting sustainable practices. Innovations in milk production management are transforming the dairy industry in India and empowering farmers to drive profitability. By embracing these innovative approaches and leveraging technology, dairy farmers can secure a prosperous future and contribute to the overall development of India's agricultural sector.

Vishal

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Role of Markers in Diagnosis of Liver Dysfunction in Animals

Dr. Pallavi Khajuria, Dr. Gurpreet Singh, Dr. Rachana Sharma and Dr. Chetna Mahajan

Department of Veterinary Physiology and Biochemistry College of Veterinary Science, Rampura Phul,

Guru Angad Dev Veterinary and Animal Sciences University

Serum enzymes known as transaminases mainly Aspartate aminotransferase (AST) and alanine aminotransferase (ALT) are enzymes present in hepatocytes and are released into the bloodstream in response to hepatocyte injury or death (hepatitis). Increase concentration of either of these enzymes is the most common abnormality seen on liver blood test profiles. These enzymes show their presence in different types of tissue, but ALT is considered as more liver-specific as it is present in very less concentrations in non-hepatic tissue. Alanine aminotransferase (ALT) catalyzes the transfer of the alpha amino group of alanine to alpha-ketoglutaric acid, resulting in the formation of pyruvic and glutamic acid. Aspartate aminotransferase (AST) catalyzes the transfer of the alpha amino group of aspartic acid to alpha-ketoglutaric acid, resulting in the formation of oxaloacetic acid and glutamic acid. AST is useful as an indicator of liver and/or muscle injury in large and small animals. AST is abundantly present in skeletal, cardiac, and smooth muscle

and so may be elevated in patients with myocardial infarction or myositis. Although alanine aminotransferase is considered a more specific indicator of liver disease, the concentration of AST may be a more sensitive indicator of liver injury in conditions such as congestive liver due to heart failure, and in some cases of autoimmune hepatitis (AIH).

Creatine kinase (CK) is an enzyme whose levels can help in diagnosing myocardial infarction and can help in assessing if the increased AST is due to an underlying muscle disorders, such as myocardial infarction, myositis or various muscular dystrophies.

Aspartate aminotransferase (AST) is generally increased in patients with hemolysis. The degree of ALT elevation may correlate with the extent of hepatic injury but is generally not of prognostic importance. Amino transaminase levels may be increased in acute viral hepatitis, drug-induced liver injury (DILI), acute liver failure, or ischemic hepatitis (shock liver) where as very high ALT levels are generally more common in acetaminophen overdose and ischemic injury to

the liver. Mild to moderate elevations of aminotransferase levels are typical of chronic viral hepatitis, hemochromatosis, and Wilson disease. Abnormally low amino transaminase levels may be associated with uremia and chronic dialysis; chronic viral hepatitis in this population may not result in aminotransferase elevation.

Biliary Enzymes Alkaline phosphatase (ALP) is produced mainly in the liver (from the hepatocyte canalicular membrane with a significantly lesser contribution from the biliary epithelium) but is also found in abundance in the bone and in smaller quantities in the intestines, kidneys, and white blood cells. Levels are physiologically higher in childhood, associated with bone growth, and in pregnancy due to placental production. Pathologically increased levels occur mainly in bone disease (e.g., metastatic bone disease and bone fractures and bile duct obstruction, intrahepatic duct obstruction (metastases), and drug-induced cholestasis. Furthermore, hepatic congestion secondary to right-sided heart failure can also lead to cholestasis (elevated ALP levels and/or bilirubin). GGT enzyme helps in assessing if the elevated ALP is of hepatic or non-hepatic origin. GGT is present in the organs such as liver, kidney, intestine, prostate, and pancreas and not in the bone; thus it is useful in assessing if rise in ALP is of

liver and not bony origin. Drugs such as phenytoin or barbiturates and conditions such as obesity and excess alcohol consumption may result in elevated. Elevated GGT is best predictors of liver mortality though it has low specificity for liver disease.

Albumin is a protein synthesized in the liver and serves many important functions such as maintenance of oncotic pressure and binding of other substances (such as fatty acids, bilirubin, thyroid hormone and drugs, metabolism of compounds, including lipids, and antioxidant properties). Serum albumin concentration is often considered as best marker of the synthetic function of the liver. Albumin concentrations are reduced in many clinical situations, including sepsis, systemic inflammatory disorders, nephrotic syndrome, malabsorption, and gastrointestinal protein loss. Albumin has a plasma half life of 3 weeks, resulting slow change in serum concentration in response to acute alteration in hepatic function. Blood clotting factors such as (II, V, VII, IX, and X) are synthesised in the liver and thus Prothrombin time (PT) and international normalized ratio (INR) are markers of blood clotting and thus used as indicator of liver function. Liver injury leads to reduction in clotting factor production and subsequent coagulopathy, as confirmed by

a prolonged PT or INR. Delayed PT/INR can also be indicative of either acute or chronic liver dysfunction, vitamin K deficiency due to fat malabsorption and chronic cholestasis.

Bilirubin is a breakdown product of hemoglobin, red cell breakdown in the reticuloendothelial system, heme is degraded by the enzyme heme oxygenase in the endoplasmic reticulum. Bilirubin has a high affinity for blood protein albumin and thus it binds to albumin and unconjugated bilirubin/indirect bilirubin is formed. Unconjugated bilirubin, being lipid soluble, is not filtered by the glomerulus, and conjugates with glucuronic acid by uridine diphosphate (UDP)-glucuronyl transferase to form a more water-soluble compound that can be easily excreted in bile. It is rapidly cleared from the blood by hepatocytes and then conjugated bilirubin and unconjugated bilirubin are also referred to as direct and indirect bilirubin, respectively, based on their reaction with diazo dyes. In clinical practice, most clinical laboratories today measure total and direct bilirubin and calculate indirect bilirubin.

Thus liver markers play a very important role in diagnosing hepatic dysfunction, determining any liver disorder and provides an accurate indication of the overall health of the liver.



Benefits & Performance of Sex-Sorted Semen in cattle and buffalo under smallholder Dairy Farming System in India

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 Central Research Station, BAIF Development
 Research Foundation, Uruli Kanchan, Pune –
 412 202, India

Background

The Indian dairy sector is growing at a rapid pace. India continues to be the largest milk producer in the world, producing 210 million tons in 2020-21. Several measures have been initiated by the government to increase the productivity of individual dairy animals, which can be witnessed by annual growth of 5.8% in milk production (Department of Animal Husbandry and Dairying, 2022). One biotechnological tool which stood out among many other tools is artificial insemination (AI), which has been instrumental in disseminating the high-quality genetic material at farmers' doorstep, leading to significant increment of milk production in India.

Despite merits of conventional AI, there are few concerns with growing mechanization in the agriculture sector, and the demand of male calf/ bulls especially

crossbred cattle perished. Now, male calves which no longer assets are lost from the system either through early calf mortality or are released into the village commons where they roam unattended. These released bulls become a nuisance for planned breeding interventions. Additionally, anti-slaughter laws in cattle hinder further progress in the dairy industry. The conventional AI technology alone will not be able to bring the desired improvement in building the dairy heifer stock.

This is not just need of time but the opportunity for Indian farmers to rip the reward through adoption of advanced technology and increase the economic benefits. A technology like sex-sorted semen (SSS), which can boost the production of desired sex calves, is highly beneficial for building a profitable smallholder dairy sector.

Benefits of Sex Sorted Semen

Sex Sorted Semen Produced Progenies



a. Production of replacement heifers

Building up a dairy herd is an important input for a viable dairy operation and acquiring enough heifers for such expansion is a difficult proposition. Use of Sex Sorted semen could help hasten this process and the success rate is reported to be as high as 90%. Use of Sex Sorted semen will result in the birth of heifer calves 90% of the times in contrast to non-Sex Sorted semen, which could result in birth of female calves only in 50% of the times. The additional heifer calves will help to expand the dairy herd in a faster pace.

b. Building a disease-free closed herd and improving desirable traits in a faster way

Expanding the herd size requires procurement of heifer calves from the outside market, which may pose introduction of diseases into the herd, which might jeopardizes the farmer objective of maintaining a disease free herd. Internal herd growth using Sex Sorted semen might help to resolve this issue. Further the farmer also could ensure that the calves are produced from his own elite dams in a shorter period of time. Production of such genetically superior daughters will result in improving the desired traits in shorter period, resulting in faster genetic progress.

c. Production of bulls and daughters for progeny testing

Using Sex Sorted semen from superior evaluated bulls, bull calves could be produced from

a population of elite cows for the purpose of progeny testing of these bull calves for genetic evaluation. The young sire program thus will benefit greatly by the use of Sex Sorted semen. Similarly production of required numbers of daughters for testing a bull in the field could be achieved from less number of inseminations resulting in use of fewer resources to achieve the same end result.

d. Reduction in calving difficulties

Use of Sex Sorted semen tend to produce 90% of female calves, which biologically weigh lesser than the male calves, the percentage of difficult calving are reduced almost to half. Reduced calving difficulty will help the cows to settle into milking quickly. The costs associated with handling difficult births and loss of calves could be reduced.

e. Better use of available feed and fodder resources

There is considerable shortage of cattle feed, green fodder and dry fodder. These available resources are shared by the dairy animals (low producing indigenous, crossbreds and buffalos) and large number of male large ruminants. Thus, the high producing dairy animals are deprived of good nutrition to produce milk matching to their genetic potential. The use of Sex Sorted semen will result in production of almost 90% females and eliminate the male calves right at the birth which will result in increased availability of available feed and fodder resources to the milk producing dairy animals.

f. Help in climate change mitigation strategy

In recent past the adverse effects of climate change are realised world over. These are mainly because of global warming and production of Green House Gases (GHGs). The dairy industry and the dairy animals and other livestock are suggested to be the major agents responsible for GHG emission. The use of Sex Sorted semen will result in reducing the dairy animal population by eliminating the birth of male calves on one hand and helping in production of high milk producing females at a faster rate on the other. The overall reduction in the population will ultimately result in less production of methane and other GHGs.

g. Faster multiplication of indigenous breeds

Some of our precious indigenous breeds are at verge of declining and with special breed development programme, opportunity could be made available to use sorted semen technology for faster multiplication of female population in the respective breed tract to increase the population within stipulated time.

Approach to SSS initiate – BAIF way

BAIF Development Research Foundation, Pune (BAIF), a large non-government organization working to improve the livelihood of smallholder farmers, have continued their efforts through promoting the sex sorted semen since 2016. Initially BAIF started with few selected AI centers/ AI technicians with good

understanding with farmers and acceptable results in form of conception rate. It took time for the farmers to accept the technology due to the comparatively higher cost, but after observing the initial results of SSS, farmers adopted technology willingly. This led BAIF to produce more than 1.1 million Sex Sorted Semen doses on the foundation of successful piloting of sex-sorted semen which 90% female sex ratio with conception rate of above 44 per cent BAIF continued to supply 1 million doses of Indigenous breeds, crossbreds, buffalo and exotic breeds to various government agencies like State animal husbandry departments, livestock developments boards, private sectors like milk unions, private farms and in its own program.

Sex Sorted Semen Production and its Quality Standards

BAIF is using SexedULTRA® technology for sperm sorting, it separates female (X) and male (Y) chromosome bearing sperms and removes the Y without killing. The technology also removes the dead and dying sperms from the raw ejaculate prior to the sorting process. Absence of dead sperms and debris eliminate the toxic effects of dead sperms on live sperms, increases the sperm viability, progressive motility and improve the conception rate significantly. SexedULTRA® also provides gender purity of more than 90% which ensure the gender ratio of calves born to be more than 90% females. The conception rate of SexedULTRA® Sex Sorted Semen is proven to be similar to or more than that of conventional semen and the gender ratio of calves born is over 90% in the field. High quality standard was maintained during the dispatching the sex sorted semen batches, over

2500 ejaculates of various breeds were processed since inception to Jan, 2023. The quality control test results were above the standard in all the QC tests. The average Post thaw Progressive motility at 0 hrs was 64 per cent, average Post thaw Progressive motility at 3 hrs was 55 per cent, average female (X chromosome) purity was 93 per cent and Acrosome Integrity at 3hrs post thaw is over 76 per cent. The average sperm concentration per straw was 2.2 million. These quality standards ensured the higher conception rate as well as 90 per cent birth of female progenies.

SSS performance at farmer's herd

The performance of sorted semen of Indigenous breeds like Gir, Sahiwal, Red Sindhi, Tharparkar and Khillar, buffalo breeds like Murrah and Jaffrabadi breeds, crossbreds and exotic breeds is also monitored for conception rate and sex ratio under BAIF's livestock development program. The conception rate of sex sorted semen produced from BAIF facility is around 44.4 per cent from 2,43,977 number of Artificial Inseminations and female birth percentage observed was 91% from more than 30,277 calving's recorded. Additionally, the conception rate of Sex Sorted Semen in heifers as well as multiparous animals has been observed similar.

How BAIF's SSS initiative may augment dairy economy transformation

BAIF has collected a data of more than 250 thousands of SSS inseminations carried out at farmers' herd under their program. With conception rate of approximately 44% and 90% female births, we have derived some figures using few standard assumptions like 20% heifer loss, 30,000 rupees market value of

mature heifer and average milk price of 30 rupees per litre with average 2000 Kg milk yield per lactation, theoretically BAIF may have generated estimated surplus by smallholder dairy farmers to the tune of 3,128 million rupees. Although, these are not actual economic evaluations and may vary with the actual economic gain over a period of time. However, the assumptions considered, while calculating the economic gains are quite conservative & may surpass in actuality.

Challenges observed during the SSS implementation and measures taken for its success

During the implementation process, BAIF encountered number of hurdles especially the cost the SSS and rare birth of male calves. However, BAIF found ways to counter these issues mainly through farmer awareness programs, experienced AI technicians, and observable results in terms of sex ratio and conception rate. BAIF also adopted certain measures to track the progress of the SSS use at farmers' herd by real time tracking of SSS doses and providing affordable access of SSS through subsidized way.

SSS Program – A Way Ahead

Department of Animal Husbandry and Dairying (DAHD), GoI sanctioned a project on using Sex Sorted Semen for getting assured pregnancy under Accelerated Breed Improvement Programme of Rashtriya Gokul Mission (RGM) Scheme. The ABIP-SS program will help to widespread adoption of sorted semen technology therefore is expected to improve the farmer's income by producing more high yielding females and reducing the economic losses accrued due to male calf birth.



Zeus Biotech: Advancing Animal Health and Performance with Specialized Feed Supplements

Zeus Biotech Private Limited was established in the year 1991 and is one of the leading animal feed supplement manufacturing companies in India providing all-natural feed supplements to the livestock industry for more than 30 years. The company which specializes in the use of biotechnology; the science of exploring living organisms to make or modify products, plants, and animals or to develop micro-organisms for specific purposes, provides solutions which can improve the efficiency of feed and performance of animals through a safe and natural way. Through their core expertise in feed specific Solid-state fermentation (FS-SSF), which is a green technology with zero waste generation, Zeus Biotech produces some of the leading

product lines including, Fermented Organic Trace Minerals, Feed Specific SSF Enzymes, Yeast Culture, etc., exclusively for animal supplementation. Organomin Forte, Microguard, Polyzyme and Rumiyeast are some of the leading brands from Zeus Biotech. The unique FS-SSF technology exploits the matrices and conditions prevailing in feed and feed processing, to produce speciality products with high stability and efficacy required to improve animal health, performance and farming profitability. The organisation also produces unique line of Bacillus based probiotic strains at their submerged fermentation facility for some of their leading probiotic product brands including Microguard and NE-Guard.



Culture Processing in Microbial Culture Collection Centre - Zeus



1st unit - Zeus

Founded by Dr. Jay Prakash Nair, Zeus Biotech is one of the oldest animal nutrition dedicated biotech company situated in the south of India. With its commitment to realize the dream of providing natural solutions for sustainable livestock farming practices across the globe, the company has been successful in reaching out to customers in India and more than 20 countries including Malaysia, Thailand, Vietnam, Philippines, Australia, UAE, Oman, Qatar, Kuwait, Jordan, Egypt, Kenya, Tanzania, Nigeria, Ghana, Mozambique, Uganda, Bangladesh, Bhutan, Nepal, and Sri Lanka. The company which currently owns three feed supplement dedicated manufacturing facilities in Mysore, Karnataka, with its progressive

approach has accomplished to generate 100% of its power requirement through solar energy for its largest manufacturing facility.

Zeus Biotech Research and development centre, the research and analytical division of Zeus Biotech Pvt Ltd, is now accredited for ISO/IEC 17025 by National Accreditation Board for Testing and Calibration laboratories (NABL). Under the accredited scope the laboratory will be able to carry out and issue reports of proximate analysis of feed and feed materials. The analytical facility which is already catering to poultry and other livestock farmers, integrators and feed manufacturers across India and overseas, will now be able to issue analytical reports with global acceptancy.

The research and development centre which is one of the most

modern animal nutrition dedicated biotech facilities in India, hosts multiple departments including Microbial Culture Collection, Research & Development as well as Quality Control. The centre which is spread over an area of 10,000 square feet and equipped with analytical instruments such as Liquid Chromatography, Mineral Spectroscopy, NIR, Thermocycler, etc., is skilled in microbial culture handling and processing, quality testing of feed, feed raw materials and feed supplements, determination and efficacy evaluation of enzymes, microbial strains, toxin binders and detoxifiers, organic acids, quantitation of various mycotoxins, evaluation, profiling and characterization of proteins and amino acids, quantitation of nutritional trace elements and toxic heavy metals, as well as

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MONEY
doesn't talk, it swears

Happy cow Plus milk

4 Benefits

1. Money Plus Improves milk yield
2. Improves the fat percentage
3. Improves reproductive performance
4. Helps in better growth

2 Goals

1. More Milk
2. More Profit !!!



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or visit our website www.irides.in



Liquid Chromatography in Department of Research & Development - Zeus

testing of water parameters.

The centre also houses an exclusive and extensive microbial culture collection centre with numerous feed targeted fungal and bacterial strains with area of application including production of probiotics, feed specific enzymes, yeast culture, organic minerals, and other related applications. Many of these inhouse strains which have been isolated from various natural sources by the research team has been successfully used in various animal nutrition related applications. Selected strains have also been deposited in various internationally recognised microbial depositories including Microbial Type Culture Collection Centre (MTCC), Chandigarh, India and Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH (DSMZ), which is the German National Culture Collection Centre.

Another major highlight of the Research centre, the inhouse



Quality Control Department which monitors, maintains, and controls the critical control points of the entire production facility is equipped with infrastructure and instruments qualified for analysing, determining and measuring analytes and parameters including minerals, enzymes, probiotics and pathogenic microbes, mycotoxins, toxic heavy metals, etc. The department thus ensures quality at various levels including raw material entry, material handling, during fermentation and other production related processes and finished product release. The department which follows European Feed Safety Authority guidelines and other international standards for its Quality system,

analyses and confirms 25 – 30 quality and safety parameters in each product before release from its facilities.

Zeus Biotech has the group companies, Kenzoe Private Limited, Zymonutrients Private Limited and Jaysons Agritech Private Limited. Kenzoe Private Limited caters liquid / water soluble farm care / healthcare products for Poultry. Zymonutrients Private Limited caters innovative products for Aquaculture, Equine, Pets & Zoo animals. Jaysons Agritech Private Limited caters the products for Dairy cows like Rumen yeast specific yeast culture, Fodder / Feed specific Enzymes, Organic trace minerals, Milk production enhancers, etc.



Mineral Analysis Facility in Department of Research & Development - Zeus



NIR in Feed Analysis Lab - Zeus





Elevate Animal Nutrition Standards with Glyminstar: WBCIL's Breakthrough Product for Enhanced Results



Dr. Barnali Devi

Sales Manager, VETNOVA, WBCIL.

GLYMINSTAR*The blend of Organic Trace Minerals*

Glyminstar is an organic trace mineral mixture for poultry, Dairy & Aqua manufactured by VETNOVA, the Animal Health Division of WBCIL (West Bengal Chemical Industries Ltd)

At today's date the use of inorganic minerals in dairy or poultry rations has been replaced by chelated minerals because of its added advantages.

Glyminstar is chelated with the ideal chelating agent Glycine that has got higher stability constant compared to other ligands. Higher stability constantly keeps the chelate intact & increases the bioavailability of minerals ensuring efficient release in tissues. Glycine has a specific site of absorption (active and passive) in the intestine. And hence there is no wastage of the minerals while it travels to the distal part of the gut.

Chelation is not just a physical blending of a mineral with an amino acid but rather involves chemical bonding. A coordinate covalent bond is required for chelation, where both electron pairs are donated by the ligand. Ligand transforms the previously inorganic molecule into an organic mineral form, & hence bioavailability is increased.

A mineral in a chelated state allows easy passage through the intestinal wall into the blood resulting in increased metabolism of that mineral.

Glyminstar has adequate quantities of Zinc, Copper, Manganese, Selenium, Iron, Chromium, Cobalt & Iodine in a chelated state.

Zinc is a major player in the creation

of DNA & growth of cells, building proteins, healing damaged tissue & supporting healthy immune system.

Copper is required for formation of antibodies, WBC & antioxidant enzyme productions & proper immune development.

Manganese is an important cofactor for many enzymes involved in energy and protein metabolism.

Selenium is an essential component of various enzymes & proteins called selenoproteins, that helps to make DNA & protects against cell damage.

Iron is required to form Hemoglobin that transports oxygen and Myoglobin that stores and uses oxygen in muscles.

Chromium is important for breaking down fat & carbohydrates.

Cobalt combined with Vitamin B12 optimizes erythropoiesis and nervous functions.

Iodine is required to produce thyroid hormone which maintains energy metabolism and productive performance in dairy cattle and other livestock.

All the trace minerals are perfectly chelated with Glycine and blended in Glyminstar, hence it gives excellent results in the targeted species including aqua.

As the addition of a very small quantity in the feed gives good results it is cost effective as well.

For poultry 500-800 gm and in cattle, buffalo & aqua 500 gm per ton of feed serves the purpose and for calf, sheep, goat & pig, it is just 2 gm per day.

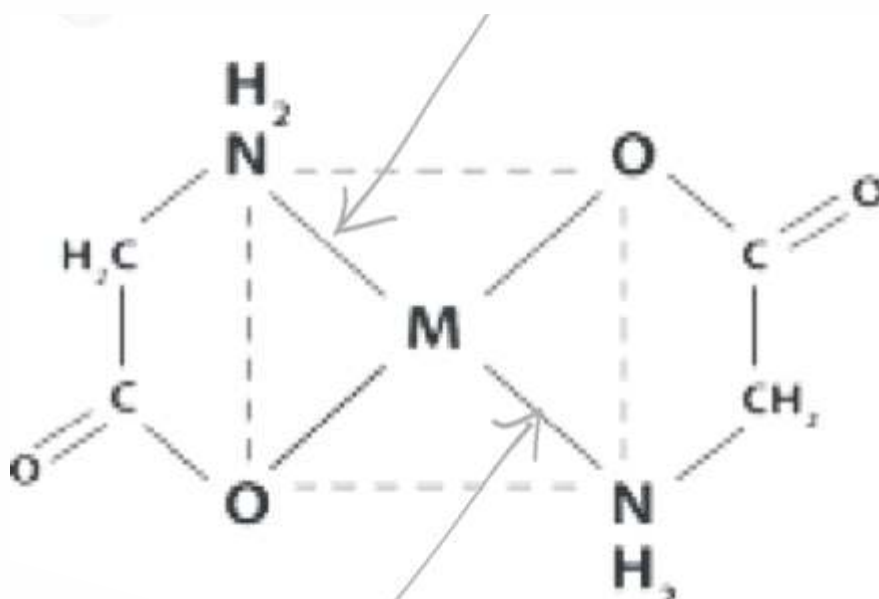


FIG: Metal Glycine Chelate Structure (M represent metal atom)



Healthy Milking Practices: Ensuring Quality and Safety in Dairy Production

Parth Rai Gupta

Editor, Dairy Planner

India is the largest producer of milk in the world, with a vibrant dairy industry that plays a crucial role in the country's economy and food security. The dairy sector provides livelihoods to millions of small-scale dairy farmers across the country. However, despite its significant contribution, Indian dairy farmers face numerous challenges in managing milk production.

Milking is a crucial process in dairy production that directly impacts the quality and safety of milk and milk products. Implementing healthy milking practices is essential to ensure the production of safe and high-quality milk.

This article explores various aspects of healthy milking practices including pre-milking, milking, and post-milking practices. It also covers topics such as hygiene, animal welfare, equipment maintenance, and milk handling procedures. By following these practices, dairy farmers can contribute to the overall improvement of milk quality and safety standards.

Pre-Milking Practices

Pre-milking practices refer to the steps and procedures carried out before milking cows or other dairy animals. These practices are essential to ensure the quality and safety of the milk and to maintain the health and well-being of the animals.

Cleanliness: Maintaining cleanliness is crucial to prevent contamination of the milk. The milking area, including the milking parlor or barn, should be clean and free from dirt, dust, and manure. Regular cleaning and disinfection of the milking equipment and surfaces are necessary.

Animal Preparation: Before milking,

the udder and teats of the animals should be cleaned thoroughly. This helps remove any dirt or debris that could potentially contaminate the milk. A clean, damp cloth or pre-milking wipes are often used to wipe the udder and teats.

Forestripping: Forestripping involves gently hand-milking a few streams of milk from each teat before attaching the milking machine. This process helps check for any abnormalities in the milk and ensures proper milk letdown.

Milker Hygiene: The person milking the animals should follow proper hygiene practices. They should wash their hands thoroughly with soap and water or use sanitizing solutions before milking. Wearing clean gloves during milking is also common practice to maintain hygiene.

Teat Dipping: After cleaning the teats, they are often dipped or sprayed with an approved teat disinfectant. Teat dipping helps prevent the growth of bacteria and reduce the risk of mastitis, a common udder infection in dairy animals.

Milking Order: Establishing a consistent order for milking animals is important to prevent the spread of contagious infections, especially in the case of a diseased animal. Typically, healthy animals are milked before those with any health issues.

Monitoring Animal Health: Before milking, it is essential to observe the animals for any signs of illness, injury, or abnormal behavior. Sick or injured animals should be identified and separated from the milking herd to prevent the spread of disease.

These pre-milking practices help ensure milk quality and the overall health of the animals in a dairy

operation. They are implemented to maintain high standards of hygiene, prevent contamination, and reduce the risk of transmitting diseases to both animals and consumers.

Milking Frequency and Duration

The milking frequency and duration can vary depending on several factors, including the type of dairy operation, the stage of lactation, the breed of the animal, and management practices. Here are some general guidelines:

Milking Frequency: Most dairy cows are milked two to three times a day, with the most common being twice a day. This schedule helps maintain milk production and udder health. Some farms may choose to milk cows three times a day, particularly high-producing cows or during peak lactation.

Milking Duration: The duration of each milking session depends on the milk flow rate of the individual cow and the efficiency of the milking system. On average, the milking process takes around 5 to 7 minutes per cow. However, it can vary from 4 to 10 minutes or longer, depending on factors such as udder size, milk letdown speed, and milking equipment.

Extended Milking Intervals: In some management systems, especially on pasture-based or robotic milking farms, cows may be milked less frequently with extended milking intervals. This approach allows for more flexibility and cow autonomy. However, it requires careful monitoring of udder health and milk production to ensure cow comfort and optimal milk yield.

Post-Milking Practices

Post-milking practices are the steps and procedures carried out after milking cows or other dairy animals. These practices are crucial for maintaining milk quality, promoting udder health, and ensuring the cleanliness of the milking equipment.

Teat Dipping or Spraying: After

milking, the teats should be dipped or sprayed with a post-milking teat disinfectant. This helps protect the teats from bacterial contamination and reduces the risk of mastitis.

Teat Sealing: In some dairy operations, a teat sealant or teat dip with a barrier film is applied to the teats after milking. This creates a physical barrier and further reduces the risk of bacterial invasion into the udder between milkings.

Cleaning and Sanitizing Milking Equipment: The milking equipment, including milking machines, milk lines, and milk storage containers, should be thoroughly cleaned and sanitized after each milking. This prevents the growth of bacteria and ensures the milk quality. Proper cleaning protocols involve disassembling, rinsing, washing with detergent, and sanitizing the equipment.

Milk Storage and Cooling: After milking, the milk is usually stored in a clean and appropriately designed bulk milk tank. The milk should be promptly cooled to a safe storage temperature (usually below 4°C or 39°F) to inhibit bacterial growth and maintain milk quality. Cooling can be achieved through direct expansion refrigeration or other cooling methods.

Record Keeping: Dairy farms often maintain records related to milking, including milk production, milk quality, cow health, and any issues or treatments administered to individual animals. These records help in monitoring the performance of the herd, identifying potential problems, and maintaining traceability.

Monitoring Udder Health: Regular monitoring of udder health is essential to identify early signs of mastitis or other udder infections. This may involve visual inspection, palpation of the udder, or using electronic devices that measure milk conductivity or somatic cell counts.

Bedding and Housing Management: Clean and

comfortable bedding is important to promote cow comfort and reduce the risk of udder and teat contamination. Regular cleaning and bedding replacement in the housing areas are necessary to maintain hygiene.

Animal Welfare and Milking

Animal welfare is a crucial aspect of the dairy industry, and it plays a significant role in milking practices. Ensuring the well-being of dairy animals during the milking process is essential for their health, productivity, and overall quality of life.

Comfortable Milking Environment:

Providing a comfortable and low-stress milking environment is important. The milking parlor or barn should be well-designed, well-ventilated, and adequately lit. Comfortable flooring and proper ventilation help minimize stress and promote cow well-being during milking.

Proper Handling and Restraint:

Animals should be handled gently and with care during milking. Rough handling or excessive force can cause stress and discomfort to the animals. Proper restraint methods, such as well-designed stanchions or modern milking equipment, should be used to ensure the safety of both the animal and the milking personnel.

Milking Equipment Fit and

Function: The milking equipment should be properly sized and fitted to the animals to avoid discomfort or injury. Ill-fitting or poorly maintained equipment can cause pain, bruising, or damage to the udder or teats. Regular equipment maintenance and inspection help ensure smooth and pain-free milking.

Milking Routine and Duration: A consistent and appropriate milking routine is important for cow comfort. Consistency in milking times and duration helps cows adapt to the process and reduces stress. Overmilking or excessively long milking sessions can lead to discomfort and udder health issues. Monitoring milk flow rates and

adjusting milking duration accordingly can help prevent overmilking.

Preventing Cross-Contamination:

Stringent hygiene practices during milking help prevent cross-contamination and reduce the risk of mastitis and other udder infections. Proper cleaning and sanitization of milking equipment, as well as regular teat dipping or spraying, are important steps to maintain udder health and milk quality.

Access to Water, Feed, and Rest:

Dairy animals should have access to clean water, appropriate feed, and comfortable resting areas before and after milking. Providing proper nutrition and adequate rest time between milkings promotes animal well-being and helps maintain milk production and overall health.

Dairy farmers are increasingly recognizing the importance of animal welfare and incorporating practices that prioritize the well-being of their animals during the milking process. Regular training, adherence to best management practices, and staying updated with advancements in animal welfare research contribute to improving the welfare of dairy animals in the industry.

Quality Control and Testing

Quality control and testing are essential aspects of the dairy industry to ensure the safety, quality, and compliance of milk and dairy products. Various tests and quality control measures are employed throughout the production process to monitor and maintain the integrity of the products. Some key aspects of quality control and testing are:

Milk Sampling and Testing: Regular sampling of milk is conducted to assess its composition, quality, and safety. Common tests include determining milk fat content, protein content, lactose content, somatic cell counts (indicative of udder health), bacterial counts, and presence of antibiotics or other contaminants. These tests help ensure that milk

meets regulatory standards and consumer expectations.

Pasteurization and Heat Treatment:

Pasteurization is a critical process that involves heating milk to eliminate harmful bacteria and pathogens while preserving its quality. Dairy processors regularly monitor and validate pasteurization parameters, such as temperature and holding time, to ensure effective microbial reduction without compromising product quality.

Microbiological Testing:

Microbiological testing is performed to monitor the presence and levels of microorganisms in milk and dairy products. These tests include total plate count, coliform count, yeast, and mold count, as well as specific pathogen testing (e.g., Salmonella, Listeria, E. coli). Microbiological testing helps assess product safety and ensure compliance with regulatory standards.

Quality Assurance Programs: Dairy processors often implement quality assurance programs, such as Hazard Analysis and Critical Control Points (HACCP) or Good Manufacturing Practices (GMP), to identify and control potential hazards and ensure consistent product quality and safety. These programs involve monitoring, documentation, and verification of critical control points throughout the production process.

Regulatory Compliance: Dairy products are subject to various regulatory standards and requirements, such as those regarding composition, labeling, and food safety. Quality control measures and testing help ensure compliance with these regulations, including those related to milk composition, labeling claims, pathogen limits, and hygiene standards.

Third-Party Testing and

Certification: Some dairy producers and processors may opt for third-party testing and certification programs to validate the quality and safety of their products. These

programs involve independent testing and auditing to provide consumers with additional assurance of product integrity and adherence to specific quality standards.

By implementing rigorous quality control measures and testing protocols, the dairy industry ensures that milk and dairy products meet the highest standards of safety, quality, and compliance. These practices help safeguard public health, maintain consumer confidence, and support the reputation of the dairy sector.

Training and Education

Training and education are crucial components of the dairy industry to ensure the knowledge, skills, and competency of farmers, farm workers, and industry professionals. Proper training and education help improve productivity, animal welfare, milk quality, and overall farm management.

Training and education in the dairy industry can be provided through various channels, including agricultural institutions, extension services, industry organizations, private training providers, and on-farm mentoring. These initiatives play a crucial role in equipping dairy farmers and professionals with the necessary knowledge and skills to meet the challenges of modern dairy production, animal welfare standards, and food safety requirements.

Conclusion

Healthy milking practices are critical for ensuring the production of safe and high-quality milk. By implementing proper pre-milking, milking, and post-milking practices, dairy farmers can contribute to improving milk quality, animal welfare. The future prospects for the industry depend on continuous efforts to educate farmers, promote research and innovation, and enforce regulatory standards. By working collectively, India can strengthen its position as a leading producer of safe and nutritious milk, meeting the demands of its growing population.



Revolutionizing India's Dairy Industry: Innovative Approaches to Boost Milk Production Profitability

India has a rich history of dairy farming, and milk production is critical to the country's agricultural sector. With a growing population and increased demand for dairy products, milk production profitability has become a major concern for dairy farmers. Innovative approaches and technological advancements have revolutionised milk production management in India in recent years, allowing farmers to increase profitability while meeting rising consumer demand. Some of the key innovations in milk production management that are reshaping India's dairy industry are:

Adoption of Precision Livestock Farming

Precision livestock farming (PLF) is a technology-driven approach to livestock management that uses advanced sensors, data analytics, and automation to monitor and manage livestock. Dairy farmers in India have begun to embrace PLF techniques in order to increase productivity, reduce costs, and improve animal welfare. PLF allows for real-time monitoring of parameters such as milk yield, reproductive health, feeding patterns, and overall animal health. Farmers can track individual animal performance, detect early signs of disease, optimise feeding regimens, and make informed breeding and culling decisions by using

wearable devices and remote sensing technologies. This data-driven approach has significantly improved milk production efficiency and reduced losses, boosting dairy farmers' profitability.

Artificial Intelligence (AI) and Machine Learning (ML) Applications

The ability of artificial intelligence (AI) and machine learning (ML) algorithms to analyse large amounts of data and derive actionable insights has gained traction in the dairy industry. Based on historical and real-time data, AI-powered systems can predict milk yield, identify potential health issues, and optimise feeding strategies. Machine Learning algorithms can analyse genetics, nutrition, and environmental conditions to recommend specific management practises that improve milk production. These technologies not only increase overall productivity, but they also help to reduce costs and reduce the environmental impact of dairy farming. Dairy farmers in India can make data-driven decisions and fine-tune their management practises by leveraging AI and ML, increasing profitability and sustainability.

Intelligent Feeding Systems

In dairy farms, efficient feeding is critical for increasing milk production. Traditional feeding

methods frequently result in wasteful use of resources and suboptimal nutrition for the animals. Smart feeding systems have emerged as a game changer in the management of milk production. These systems employ automated feeders outfitted with sensors and monitoring devices to provide individual animals with customised diets based on their nutritional requirements. The sensors can detect and measure how much feed each animal consumes, allowing farmers to optimise feed formulation and reduce waste. Smart feeding systems also make it easier to use precision feeding techniques, in which animals are fed specific rations based on their developmental stage and individual needs. This method not only increases milk yield but also lowers feed costs, resulting in higher profitability.

Genetic Selection and Biotechnology

Biotechnology has transformed the dairy industry by allowing farmers to improve their livestock's genetic potential. Superior genetics can be introduced into the dairy herd using artificial insemination (AI) and embryo transfer techniques, resulting in increased milk production. Genomic testing and marker-assisted selection have made it easier to identify animals with desirable traits such as high

milk yield, disease resistance, and adaptability to local conditions. Dairy farmers can create a high-performing herd that is optimised for milk production by selectively breeding animals based on these traits. This approach not only increases profitability but also ensures the dairy enterprise's long-term viability.

Diversification and value addition

Farmers in India are increasingly exploring value addition and diversification opportunities to boost profitability, in addition to focusing on milk production. Process raw milk into various dairy products such as yoghurt, cheese, butter, and ice cream, which have higher profit margins than raw milk. Dairy farmers can capture a larger share of the value chain and earn higher returns by investing in processing infrastructure and marketing. Diversification into complementary activities such as organic farming, biogas generation, and compost production from animal waste can provide additional income while promoting sustainable practises. These strategies not only increase profitability but also reduce the risks associated with changes in milk prices and market demand.

Systems for Quality Assurance and Traceability

In today's health-conscious market, ensuring the quality and safety of milk and dairy products is critical. To meet consumer expectations and regulatory requirements, the dairy industry is implementing innovative quality assurance and traceability systems. Stringent testing and

monitoring procedures are used in these systems at various stages of milk production, processing, and distribution. Blockchain and QR codes are being used to provide end-to-end traceability, allowing consumers to verify the source and quality of the milk they buy. Quality assurance and traceability systems not only increase consumer confidence, but also protect dairy farmers' reputations and contribute to the industry's overall profitability.

Environmentally Friendly and Sustainable Practises

Because of growing environmental concerns and consumer preferences for eco-friendly products, sustainability has become a key focus in milk production management. Organic farming, efficient water management, renewable energy generation, and waste recycling are among the sustainable practises used by dairy farmers in India. Organic farming practises promote natural resource conservation, biodiversity, and animal welfare by avoiding the use of synthetic inputs. Biogas plants installed on farms generate clean energy from animal waste, reducing greenhouse gas emissions and reliance on fossil fuels. Dairy farmers can improve their market appeal, lower production costs, and increase long-term profitability by implementing sustainable practises.

Initiatives and Assistance from the Government

The Indian government recognises the importance of dairy farming and has put in place a number of initiatives to help milk production

management and profitability. Programmes like the National Dairy Plan, National Livestock Mission, and Rashtriya Gokul Mission aim to improve dairy farmers' breed improvement, fodder production, infrastructure development, and skill training. The government also provides financial assistance, subsidies, and loan facilities to encourage dairy product technological adoption, value addition, and market linkages. These initiatives foster an environment in which farmers can adopt innovative practises, increase productivity, and increase profitability in the dairy industry.

Milk production management innovations are transforming India's dairy industry and empowering farmers to drive profitability. Precision livestock farming, AI and ML technologies, smart feeding systems, biotechnology, and value addition have all revolutionised milk production and management. Quality assurance systems, sustainability practises, and government assistance all contribute to milk production's overall profitability. These innovations enable farmers to increase productivity, cut costs, improve animal welfare, and meet changing consumer demands. As India's dairy industry expands, farmers must embrace innovative approaches and leverage technology to achieve sustainable and profitable milk production. Dairy farmers can secure a prosperous future and contribute to the overall development of India's agricultural sector by embracing these advancements.



The Un-moo-vable Challenges Faced by Indian Dairy Farmers in Milk Production Management

Life on the farm is often romanticized, with images of happy cows lazily grazing on lush pastures while their contented milk is effortlessly collected. But let me tell you, being an Indian dairy farmer is no cakewalk. These brave souls face a series of challenges that would make even the most seasoned milk drinker's head spin. Today, we're going to dive into the hilarious hurdles faced by our beloved dairy farmers in their quest for udder perfection.

The A-Moo-sing Cow Conspiracy

When it comes to milk production, the dairy farmer's greatest ally (or foe) is the cow. These four-legged creatures have a knack for conspiring against their human counterparts. Just when you think you've got them all in line for milking, they'll break free and embark on a hilarious escapade around the farm. It's a veritable game of "catch me if you can" that'll leave you laughing till the cows come home.



The Butterfinger Syndrome

Milk production management requires utmost precision and care, but dairy farmers are prone to the occasional butterfinger syndrome. No matter how hard they try to handle those delicate milk cans, there's always a chance that one will slip through their grasp. Spilled milk may not be worth crying over, but watching a farmer slip and slide in a puddle of milk is comedy gold!

The Buffalocoaster Ride

While cows may be mischievous, the real rollercoaster ride in the dairy industry is courtesy of the formidable buffalo. These majestic creatures can be quite stubborn, testing the patience and sanity of even the most seasoned dairy farmer. Picture a hapless farmer trying to convince a buffalo to move an inch while the buffalo stares back. It's a classic battle of wills that provides endless entertainment for onlookers.

The Legendary Power Cuts

The challenges faced by Indian dairy farmers wouldn't be complete without mentioning the legendary power cuts. Just as the farmer prepares to milk the cows or operate the milking machines, fate decides to play a cruel joke and plunges the entire farm into darkness. With a flashlight in one hand and a determined spirit in the other, the farmer embarks on a comical dance in search of the elusive switch, praying they won't

accidentally stumble into a pile of cow dung.

The Calf Conundrum

While calves are undeniably adorable, they have a knack for causing mischief on the farm. These curious creatures will chew on anything within reach, from hoses to milking equipment, leaving the farmer in a state of constant vigilance. It's a comical sight to behold as the farmer tries to keep the calves entertained with toys and distractions while desperately trying to protect their precious milking gear.

The Unbearable Smells

Let's face it, working on a dairy farm means getting up close and personal with all kinds of smells. From the pungent aroma of cow dung to the lingering scent of sour milk, it's a sensory experience that can leave even the strongest-stomached farmer gagging. If there was an award for enduring odors with a smile, Indian dairy farmers would surely take home the trophy.

The Moo-sical Talent Show

Dairy farmers often find themselves unintentionally hosting a moo-sical talent show on the farm. Each cow has its own unique voice, and when it's time for milking, they let their melodious abilities shine. From low-pitched bass to high-pitched soprano, it's a symphony of moos that would put a choir to shame. The farmer becomes the unwitting conductor, trying to create harmony amidst the bovine chorus, resulting in a performance that's equal parts amusing and perplexing.

The Milk Mustache Mishap

As dairy farmers work tirelessly to ensure milk production is at its

peak, they often find themselves getting milk splashed on their faces. Whether it's due to a sudden kick from an enthusiastic cow or a momentary lapse in concentration, the milk mustache becomes an everyday accessory. It's a fashion statement that truly separates the dairy farmer from the rest of the crowd.

The Moo-dern Technology Woes

In an increasingly digital world, even dairy farmers attempt to embrace modern technology. However, it doesn't always go according to plan. From malfunctioning automated

milking machines that result in cow chaos to computer systems that seem to have a mind of their own, dairy farmers find themselves in a constant battle with the moo-dern technology that's meant to make their lives easier. It's a reminder that sometimes the old-fashioned way of doing things isn't such a bad idea after all.

So, the next time you enjoy a creamy cup of milk or indulge in a slice of cheese, take a moment to appreciate the laughter and smiles that go into bringing that dairy delight to your table. Cheers to the unsung heroes of the Indian dairy farms!





Report on Comprehensive Refresher Programme (CRP-2) Conducted By Centre of Excellence For Animal Husbandry, Animal Husbandry Academy of India, Hessarghatta, Bengaluru, 56008 From 05th to 09th June, 2023 For Telangana State Officers

CEAH-Bengaluru – Animal Husbandry Academy of India is setup under Government of India, Ministry of Fisheries, Animal Husbandry & Dairying, and Department of Animal Husbandry & Dairying as a consortium of 5 organizations at Hessarghatta vide Order No. F.A-430011/3/2023-Estt(HQs), dated, 14th March, 2023. This Academy is formed as per the guidelines of DoPT for National

Programme for Civil Service Capacity Building (NPCSCB) under “Mission Karmayogi” of Government of India.

CEAH-Bengaluru is spread over 642 acres distributed in four campuses at Hessarghatta. Campus – 1 consists of Central Poultry Development Organization & Training Institute (CPDO&TI), Campus – 2 consists of Central Frozen Semen Production & Training Institute (CFSPTI) and Central Cattle Breeding Farm(CCBF), Campus

Dr. Gulati addressing valedictory function DP





**Dr. Mahesh Addressing
Valedictory Function PP**

– 3 consists of Animal Quarantine and Certification Services(AQCS) and Campus – 4 consists of Regional Fodder Station(RFS).

CEAH Bengaluru has state of art automation units at poultry, Modern dairy sheds, ET lab, Sex-sorted semen lab, International Animal Quarantine facility, biggest fodder unit in the country with latest technology adoption for irrigation. The Academy consists of four campuses with conference halls, class rooms, officers and farmers hostels with boarding and lodging facilities.

CEAH Bengaluru Academy organized its second Comprehensive Refresher Programme (CRP-2) for Young Veterinary Professionals (batch size 20) from the **Government of Telangana State** from **05th to 09th June, 2023**. This course is planned with a 360 degree approach for knowledge enrichment and generic issues with the following outcomes expected to be covered:

Candidates were exposed to information on Govt. institutions of State and Central of Department of Animal Husbandry & Dairying across the country. Latest innovations, govt. schemes of both state and central sector, soft skills for adoption in service delivery, successful business models, project report analysis, activity based learning including pre-training and post-training analysis. The young veterinary professionals will be motivated and trained in the modern challenges of Animal Husbandry Sector.

On 05th June, 2023, **Dr. Mahesh P.S.**, Joint Commissioner & Director, CEAH inaugurated the programme. In his inaugural address, he briefed the mandates of CEAH Bengaluru the consortium of 5 organizations to aspire to be best Animal Husbandry Academy in India with state of art infrastructure facilities and a robust



revenue model. **Dr. Ramachandra, Director**, Veterinary, Animal Husbandry, Government of Telangana addressed online. He wished all the trainee officials all the best for participating in the training programme. He stressed on gaining knowledge of latest technologies in the fields of Animal Husbandry and he hoped that the young vets will work towards making Telangana State, No.1 in Milk Production Later, All trainees were given a digital pre-training analysis through Google Forms by **Sri. S.M. Anwar Basha** with a pre-designed format to understand the training needs of officers in various subjects.

Dr. Mahesh P.S. Joint Commissioner

& Director of CEAH academy made a presentation on Prospects of Indian Animal Husbandry Sector which is estimated to be double the Automobile sector (7.5 lakh crores) contributing about 15 lakh crores to the Indian GDP. The Dairy sector is estimated to be about 8 to 10 lakh crores, poultry 2 lakh crores and rest three lakh crores is from small ruminants etc. Indian Animal Husbandry Sector is most promising with a sustained growth for rural economy, employment and nutritional security.

In the afternoon, trainees were taken

Field Visit to Naati Hasu Goshala DP





Guest Lecture by Prof. Vivek Patil DP

to CEAH **Campus-1** CPDO&TI to visit automation units in poultry, feed mill, hatchery and demo unit. They were briefed by **Dr. Abhinav Choudhary** and **Dr. Sonali Nanda** about requirements of Automation, Functioning of Feed Mill and Hatchery at the field.

On Tuesday, 06th June, 2023 **Dr. Mahesh P.S.** presented on Indian Animal Husbandry Schemes with a mandate of Govt. of India towards quality services at farmers doorsteps (mobile veterinary clinics), entrepreneurs development(NLM, AHIDF) eradication of animal diseases(ASCAD) and Livestock Development (Rashtriya Gokul Mission), Breed Multiplication Farms, National Programme on Dairy Development, Accelerated Breed Improvement Programme feed and fodder development, livestock insurance etc. Later, **Dr. Atul Kolte**, Principal Scientist, ICAR-NIANP made a elaborate presentation on structure of ICAR, Animal Sciences Institutions in ICAR being third largest group with being 19 in number. Preceded by Horticulture Institutions, 23 and Crop Sciences institutions at the top with 27 institutions under ICAR in

India. Under Animal Science, there are two deemed Universities, 9 National Institutes, one Bureau, 5 National Research Centers, one Directorate and one Project Directorate involved in Research & Development on Animal Science in the country. Dr. Kolte presented in detail about NIANP and technology developed at this centre with a lot of commercialization of the concept from NIANP. **Dr. Sonali Nanda**, Assistant Director made a presentation on activities of CPDO&TI including the future proposed activities at CPDO&TI.

In the afternoon, trainees visited **CEAH campus-2** to visit facilities of Central Frozen Semen Production and Training Institute (CFSPTI) and Central Cattle Breeding Farm (CCBF). They appreciated the facilities of Semen Lab, ET lab, cattle sheds, milk collection etc. **Dr. Bhaskar**, Deputy Commissioner, **Dr. Atulya M.**, Asst. Commissioner and **Dr. Abdul Salam**, Livestock Officer explained the facilities. This was followed by presentations by **Dr. Arun Prasad**, Joint Commissioner. CFSPTI and **Dr. Holabasappa Teggi**, Joint Commissioner, Central Cattle

Breeding Farm (CCBF) on activities of CFSPTI and CCBF respectively.

On 7th June, 2023, Wednesday, **Sri. S.M. Anwar Basha** made a presentation on Basics of Animal Nutrition and importance of Quality Control in Livestock Feeds. Later, **Mr. Santosh**, a sheep entrepreneur presented the success story with interesting facts of Nomadic Herds of Sheep across India with very sustainable profitable sheep farming. He mentioned in his address that money saved is money made in sheep farming with greater control on inputs. The stall feeding of sheep farming has its own challenges that require higher cost, commitment and proper marketing strategy. Later this session was followed by **Mr. V.**

Sudhindranath, Desi Cow farming entrepreneur of "Naati Hasu Goshala" with a brand name "Pashu Thai" for the products of the organization. He is maintaining more than 500 desi breeds with more than 10 breeds of desi origin. He has been very successful in producing various products under his venture namely, Panchagavya, Agnihastra, Balms, Phenyls, Health products etc., by adopting innovative interventions like chaff cutting, silage making, gobar gas production, multistoried cow sheds, solar adaptations etc. This session was followed by **Dr.**

Gopakumar, CEO and Managing Director of DLG farms India (USA) on successful piggery enterprise in detail with ideal 3 way crossing, breeder model, franchise model, piglet fattening model etc to make piggery one of the most successful enterprise. **Dr. Mahesh P.S.** guided the trainees on the topic of Communication and Presentation Skills.

In the afternoon, trainees visited **CEAH Campus-4** to visit Regional Fodder Station, wherein they were exposed to fodder demo plots, fodder seeds display with a brand "Fodder Gold" followed by demonstration of Rhodes cultivation. The trainees were taken to Artificial irrigation pond which is recently

developed at this centre with 100ft x 100ft x 12 ft depth holding more than 20 lakh liters of water for sprinkler irrigation. **Dr. Aditya** and **Sri. Ashwathappa** made presentations about fodder management for the trainees.

On 08th June, 2023, the session started at 9.00 am with **Prof. Dr. Vivek Patil** from KVAFSU, Bengaluru dealing on Animal Husbandry Projects and analysis. In his three hours deliberation, he demonstrated salient features of Dairy Project in detail including calculation of ratios and feasibility concerns. Later, **Dr P. Nallappa**, Managing Director, Jagadish Poultry Farm, a successful entrepreneur in poultry made elaborate presentation on Economics of Broiler and Broiler Breeding Farms with unit cost and suggestions for adaptation to make poultry enterprise most profitable venture.

In the afternoon, Trainee officers visited **CEAH Campus-3** Animal Quarantine Certification Services (AQCS). **Dr. Tapan Kumar Sahu**, Deputy Commissioner along with **Dr. Nivedita**, Quarantine Inspector made presentations about requirements of export / import of livestock products through AQCS Bengaluru and provisions of Livestock Importation Act. Later they were shown all the facilities of AQCS. In the evening for the first time CEAH Academy introduced "Activity Based Learning" which was conducted by **Shri. Sreeranjana** and **Shri. Abishek** from, NSB Academy Bengaluru. Trainee officers along with CEAH academy team participated with highest



Inaugural Function - DP



enthusiasm.

On the last day, 9th June, 2023, trainees visited "Naati Hasu Goshala" at Kakolu early in the morning 7.00 am to appreciate the activities at the Desi Cattle Farm. Later **Dr. Sachin Deshpande**, Assistant Director(Trg), Department of Veterinary, Animal Husbandry, Govt. of Telangana presented on Department of Animal Husbandry Schemes of Govt. of Telangana. This is followed by **Dr. Vinod Bhat**, Joint Commissioner, Govt. of India and Secretary Veterinary Council of India joined online for the presentation on Veterinary Council of India and issues of Veterinary profession. The last session was presented by **Dr. Mahesh P.S.** with a future vision of Animal Husbandry Sector and Vet as a successful entrepreneur. **Mr. S.M. Anwar Basha** issued trainees Post Training google forms to seek their feedback in both google forms and written form.

The CRP-2 programme concluded with a Valedictory Function in which **Dr. B. R. Gulati, Director, ICAR-NIVEDI**, Bangalore participated as Chief Guest. In his address he praised the efforts of CEAH team for successfully conducting such a comprehensive training programme on Animal Husbandry activities. Each trainee officer were given with Kit consisting of (Executive Bag, CEAH memento, Certificate, Group Photograph and Card Drive(pen drive) consisting of all the presentations made during the five days. The trainee officers expressed their satisfaction and they rated the programme as Excellent in both "Google forms under post-training analysis and written feedback).

Dr. Mahesh P.S., acknowledged the tireless efforts of the entire Academy Team both the front end and back end consisting of logistics, hotel arrangements, outdoor team, etc for making this programme very successful.



Inaugural Group Photo



DAHD Takes a Digital Leap: Launches NANDI Portal to Facilitate Regulatory Approvals



The launch of the NANDI (NOC Approval for New Drug and Inoculation System) Portal by Shri Parshottam Rupala, Union Minister of Fisheries, Animal Husbandry, and Dairying, marks a significant step towards improving the digital infrastructure in India and enhancing the well-being of livestock and the livestock industry. The portal, developed in collaboration with the Central Drugs Standard Control Organisation (CDSCO) and the Centre for Development of Advanced Computing (CDAC), aims to streamline the regulatory approval process for veterinary products.

Through the NANDI portal, the Department of Animal Husbandry and Dairying (DAHD) will facilitate the review and examination of proposals for veterinary products with transparency, using seamless interaction with the SUGAM portal of the CDSCO. This initiative aligns with the Digital India vision and emphasizes the importance of leveraging IT systems to achieve minimum government and maximum governance.

The NANDI portal will not only support the regulatory approval process but also provide commercial assistance to

researchers and industries. It aims to expand awareness among livestock rearers and improve logistical infrastructure to increase medicine usage in the livestock sector. By ensuring the availability of immunizations and treatments, veterinary vaccinations contribute to animal health, output, and human health by enhancing the safety of the food supply and preventing disease

transmission from animals to humans.

The DAHD has been working diligently to expedite the regulatory approval process for veterinary medications and vaccines in India. In addition to the NANDI portal, the department has established empowered committees like the Empowered Committee for Animal Health (ECAH), which focuses on creating resilient and farmer-centric animal health systems. Under ECAH, a Regulatory Subcommittee comprising veterinary experts from industry and academia has been formed to deliberate on veterinary vaccine/biologicals/drugs and provide policy recommendations.

The launch of the NANDI portal is a part of the DAHD's efforts to strengthen the regulatory process and support the Animal Pandemic Preparedness Initiative (APPI). By fostering collaboration among government departments, institutes, and industries, the portal aims to expedite and reinforce the regulatory process for animal drugs and vaccines, thereby promoting growth, innovation, and the long-term success of India's livestock sector.

Dr. Sanjeev Balyan, India's Minister of State for Animal Husbandry, Dairy, and Fisheries, has also commended the department's efforts in supporting the Digital India program and recognizing the importance of maintaining animal health for a sustainable ecosystem and a secure food supply.

India's Dairy Sector Predicted to Surge with Over 6% Growth in 2023-24



According to Union Animal Husbandry and Dairying Minister Parshottam Rupala, the dairy sector in India is projected to grow at a rate of over 6% in the financial year 2023-24. This growth is consistent with the sector's performance over the past eight years, with milk production exhibiting a Compound Annual Growth Rate (CAGR) of 6.1%.

Minister Rupala emphasized that there is no shortage of milk supply in the country, and there is an ample quantity of milk powder available. This statement aims to address concerns about a supply crunch that led to a significant increase in retail milk prices during the 2022-23 period.

The dairy sector is a crucial component of India's agricultural industry, contributing 5% to the national economy and employing over 8 crore farmers directly. India holds the distinction of being the world's largest producer of milk, accounting for 23% of global production. However, the cost of milk production has been steadily rising due to various factors.

One significant factor contributing to increased production costs is the rising cost of animal feed. The expenses associated with feed, including the cost of raw materials like corn and soybeans,

have escalated due to a shortage of fodder and adverse weather conditions such as unseasonal rain and heat waves. Insufficiently fed cows during the pandemic have also resulted in lower dairy yields.

Labor costs have also risen, as dairy farming is labor-intensive. Inflation and the implementation of minimum wage laws have led to increased wages for laborers in the industry. Additionally, the cost of transporting and storing milk has increased, further adding to the overall cost of production.

In terms of per capita milk availability, India surpasses the global average. As of 2021-22, per capita milk availability in India was 444 grams per day, compared to the global average of 394 grams.

Regarding egg and meat production, India has witnessed substantial growth. In 2021-22, the country produced 129.6 billion eggs, compared to 78.48 billion in 2014-15. Similarly, meat production increased from 6.69 million tonnes (mt) in 2014-15 to 9.29 mt in 2021-22.

India is a prominent exporter of meat, dairy, and poultry products. However, in the 2022-23 financial year, the value of exports in these categories amounted to \$4.03 billion, a 2% decrease compared to the previous fiscal year (FY22).

NDDB Unveils Revival Plan for Parag Dairy, Focuses on Better Utilization of Idle Capacities

According to Meenesh Shah, the Chairman of the National Dairy Development Board (NDDB), a roadmap for the revival of the Pradesh Cooperative Dairy Federation, commonly known as Parag Dairy, has been prepared. Discussions are currently underway to make better use of Parag Dairy's idle capacities.

Shah highlighted the success of Varanasi Milk Union, which increased its daily capacity from 6,000-7,000 liters to 2 lakh liters (200,000 liters) in just over a year. This

achievement demonstrates that dairy cooperatives in Uttar Pradesh can be revived by providing improved services to milk producers and implementing professional and efficient operations.

However, Shah emphasized that reviving the dairy sector in Uttar Pradesh through cooperative strategies requires joint efforts from dairy cooperatives and milk producers' organizations. The NDDB has already undertaken significant initiatives in Uttar Pradesh to support dairy cooperatives and milk producer organizations in places like Banaras, Gorakhpur, and Raebareli.

Shah also recognized the need for better availability of feed and fodder, as milk producers typically spend about 70% of the producer price on these resources. In response, the NDDB is promoting certified fodder seeds under the National Livestock Mission and establishing Fodder Plus Farmer Producer Organizations (FPOs). Additionally, initiatives such as silage making, securing crop residue, and total mixed ration are being implemented to support the dairy sector in Uttar Pradesh.

PM Modi Applauds Local Entrepreneurs of Baramulla District for moving from Milk Deficit to Milk Surplus



The Prime Minister of India, Narendra Modi, recently commended the young and enthusiastic entrepreneurs from Baramulla district for their efforts in establishing sustainable dairy units. During a broadcast of his program "Mann Ki Baat," the Prime Minister highlighted the transformation of the district from a milk deficit to a milk surplus region.

Prime Minister Modi acknowledged the long history of farming in Baramulla but noted the shortage of sufficient milk in the past. He praised the people of Baramulla for recognizing this challenge and turning it into an opportunity by actively working in the dairy sector. He specifically mentioned the significant contribution of women in Baramulla who were at the forefront of this sector.

The Prime Minister provided examples of some inspiring entrepreneurs from Baramulla. One such entrepreneur is Ishrat Nabi, a graduate, who started her own dairy farm and produces and sells approximately 150 liters of milk daily. Additionally, Wasim Inayat from Sopore and Abid Hussain have also established their own dairy farms, collectively producing more than 300 liters of milk every day.

Prime Minister Modi emphasized that these entrepreneurs have played a pivotal role in achieving a milestone for Baramulla, as the district now produces around 5.5 lakh liters of milk daily. He further mentioned the establishment of 500 dairy units across the district, making Baramulla a prominent participant in the white revolution—an initiative aimed at increasing milk production.

The Prime Minister regarded the establishment of new dairy industries in Baramulla as evidence of the immense possibilities present in every part of the country. He reiterated that with the collective will of the people in any region, any target can be achieved.

Overall, the Prime Minister's acknowledgment of the young entrepreneurs and their efforts in the dairy sector showcases the positive impact they have made in transforming Baramulla into a milk surplus region and the potential for economic growth in the district.

Godrej Agrovet Launches New Campaign Promoting High-Quality Feed for Healthier Cattle and Increased Milk Output



Godrej Agrovet Ltd. (GAVL) has recently launched a new campaign aimed at creating awareness among farmers about the importance of high-quality feed for the better health of cattle, which in turn can lead to increased milk output. The campaign highlights the significance of using good quality feed to improve the yield and overall well-being of livestock.

In India, feed and fodder have traditionally been sources of contaminants, posing a risk to both farmers and their cattle. To address this issue, the government has made it mandatory for companies to carry the BIS Certification mark on commercial feed ingredients intended

for milk-producing animals. GAVL is one of the first BIS certified companies for compounded cattle feed products in India, ensuring that their products meet the necessary quality standards.

With a focus on animal health, productivity, and milk quality, GAVL utilizes its state-of-the-art R&D unit to develop innovative solutions and technological advancements in the animal feed industry. By using the best quality ingredients and creating a balanced diet for cattle, GAVL aims to enable farmers to achieve maximum yield and prosperity.

Sandeep Kumar Singh, CEO – Animal Feed at GAVL, emphasized the importance of cattle health in enhancing their productivity. Given that India has one of the highest livestock populations and food contamination is a significant concern, GAVL is fully committed to providing farmers with high-quality feed. By manufacturing products in compliance with BIS norms and offering a range of options categorized as Type 1 and Type 2, GAVL aims to revolutionize the animal feed industry in India and meet

the evolving needs of farmers and livestock rearers.

To raise awareness among farmers, GAVL launched a new advertisement video. The video features cattle seeking justice for better health in a courtroom setting, highlighting the importance of BIS certification for quality feed and the well-being of cattle.

Overall, GAVL's campaign emphasizes the critical role of good quality feed in enhancing cattle health, promoting higher milk output, and ensuring the well-being of livestock in India.

Iconic Vijaya Dairy in Chittoor to Reopen After Years of Closure, Amul to Lead Revival Efforts



The Chittoor Cooperative Dairy, also known as Vijaya Dairy, is on the verge of being revived after years of closure. The state government has taken steps to bring the dairy back to life, and the Chief Minister, Y.S. Jagan Mohan Reddy, is expected to inaugurate the refurbished Vijaya Dairy in Chittoor next month.



The Chittoor dairy was established in 1945 as a chilling plant and later upgraded to a cooperative dairy in 1969. It reached its peak in the early 1990s when it processed 2.5–3.0 lakh litres of milk per day. However, a decline in milk prices during that time led to financial losses for the dairy. To cope with the surplus milk, the dairy converted it into powder, but it still struggled to make payments to farmers. Eventually, the dairy abruptly shut down on August 31, 2002, without notice. Although it partially reopened in 2008, it faced setbacks and permanently closed in 2015.

During his padayatra (foot march) as the leader of the opposition, Jagan Mohan Reddy accused the then chief minister, N. Chandrababu Naidu, of intentionally shutting down Chittoor Dairy to benefit his family-owned

Heritage Foods, which also dealt in milk. Jagan promised to revive the dairy if he became the Chief Minister.

After assuming office, Jagan Mohan Reddy entrusted the revival of Chittoor Dairy to Amul, an Indian milk conglomerate. The government leased the dairy and 28.3 acres of its land to Amul Dairy for a period of 99 years. However, opposition leaders from the Telugu Desam party have raised concerns about the government's decision, alleging that it harms the dairy industry in the state. They question the lease amount of 1 crore per annum for 99 years, citing concerns about the depreciation of the rupee over time, considering the dairy's total value of over 500 crore.

Political analysts believe that the Jagan Mohan Reddy government's strategy is twofold: to revive the dairy and establish a strong competitor for Heritage Foods, which is owned by N. Chandrababu Naidu's family.

The imminent revival of the Chittoor Dairy has generated hope among farmers, dairy staff, and consumers who are eager to see the once-iconic institution regain its former glory.

DTAB Takes Strong Measures to Protect Endangered Vultures: Recommends Ban on Ketoprofen and Aceclofenac for Animal Use

DTAB

Drugs Technical Advisory Board

The Drugs Technical Advisory Board (DTAB) has taken action to protect endangered vultures by recommending a ban on the drugs ketoprofen and

aceclofenac for animal use. The DTAB formed a subcommittee to investigate drug-related issues impacting animal health and the environment and submitted a report to the Board. After considering a representation requesting a ban on these drugs to safeguard vultures, the Board decided to prohibit the production and manufacture of ketoprofen and aceclofenac for animal use.

The representation highlighted that ketoprofen and aceclofenac are as toxic to vultures as diclofenac, a drug that has already caused a significant decline in vulture populations. It was stated that aceclofenac is rapidly metabolized into diclofenac and ketoprofen is toxic to gyps vultures. Researchers from the Indian Veterinary Research Institute and others published a study in 2022 supporting these claims, advocating for an immediate ban on aceclofenac's veterinary use in countries where vultures reside.

The use of diclofenac, primarily administered to injured and dying cattle, has led to the decline of three Gyps vulture species in India and other South Asian nations since the mid-1990s. Vultures feeding on carcasses treated with diclofenac experience kidney failure, visceral gout, and death. However, the study mentioned that certain nonsteroidal anti-inflammatory drugs (NSAIDs) like meloxicam and tolfenamic acid are safe for vultures,

while others such as ketoprofen, nimesulide, carprofen, and flunixin have been found to be toxic to captive vultures.

In light of these findings, the DTAB has decided to ban the production, sale, and distribution of ketoprofen and aceclofenac and their formulations for animal use. This action aims to protect vultures from the harmful effects of these drugs and prevent further population decline.

Dairy Farming Goes Digital: IIM-Nagpur Incubated DairyMantra App to Transform Inventory Management for Dairy Farmers

The app called DairyMantra, developed by Vivek Darwai, aims to assist dairy farmers in managing their inventory effectively and maximizing their profits. Incubated by IIM-Nagpur, the app is set to be launched next month. Vivek Darwai, who holds a PhD in sustainable assessment of integrated agriculture processes and is a chemical engineer by qualification, conducted extensive research to develop the app.

Darwai's research journey began with



his curiosity about the high rate of farmer suicides in Vidarbha. Recognizing that dairy farming involves significant operational costs, he focused his master's research on the economy based on cattle produce. Under the guidance of his mentor Sachin Mandavgane, Darwai explored solutions to help dairy farmers and conducted field research by visiting over 100 villages and collaborating with various NGOs to understand the challenges they face.

One of the primary issues faced by small farmers was marketing their products. Darwai recognized that milk, being a cash crop and always in high demand, presented an opportunity for these farmers. However, they struggled with organizing, estimating, and managing resources and produce. To address these challenges, the DairyMantra app utilizes the RAMHI (Resources, Alternate revenue, Manpower, Herd, and Infrastructure) framework. It enables farmers to maintain records of cattle health, vaccination, pedigree, and deworming. The app will be available in English, Hindi, and Marathi languages and will be accessible on Google starting next month.

Government of Tamil Nadu Launches 250 Mobile Veterinary Units to Bring Animal Healthcare to Farmers' Doorsteps

The Tamil Nadu government is planning to launch 250 mobile



veterinary units (MVUs) in the state within the next two months. These MVUs are part of the government's efforts to provide veterinary services to farmers' doorsteps and improve animal healthcare.

The procurement of ambulances for the MVUs has been completed, and the Tamil Nadu Medical Service Corporation is currently in the process of hiring veterinarians and support professionals for the ambulances. The government aims to have one MVU allocated for every 1 lakh (100,000) cattle population, and each block will receive one MVU.

The total cost of purchasing the MVUs is Rs 39 crore, funded under the Union government's Livestock Health and Disease Control Programme. The state government will run the ambulances through a public-private partnership (PPP) approach. The ambulances will be equipped with diagnostic, therapy, and minor surgery facilities, as well as other essential necessities.

The MVUs will be stocked with sample collection tools like vials, vacutainers, syringes, a small refrigerator, and various therapeutic medications including life-saving pharmaceuticals and antibiotics. Each MVU will have a veterinarian, a para-veterinarian, and a driver-cum-attendant assigned to it.

The placement of the MVUs will be strategic, targeting areas where they can serve the maximum number of villages. These units will not only rescue distressed animals but also conduct special camps to protect cattle and poultry from diseases.

It's worth noting that the government had previously piloted the mobile medical ambulance system in five districts back in 2015-16. Since then, the fleet has expanded to 32 ambulances. However, in some locations, these ambulances lack the necessary infrastructure and personnel. The new batch of MVUs aims to address these shortcomings and provide comprehensive veterinary services across Tamil Nadu.

Zydus Lifesciences Expands Portfolio with 6.5% Equity Stake in Mylab Discovery Solutions



Dedicated To Life

Zydus Lifesciences, a pharmaceutical company, has announced its expansion into the diagnostics market through the acquisition of a 6.5% equity stake in Mylab Discovery Solutions Limited. The acquisition will involve Zydus Lifesciences' subsidiary, Zydus Animal Health and Investments, purchasing 65,06,500 equity shares of Mylab from the existing shareholder, Rising Sun Holdings.

The acquisition is expected to be completed within two months of signing the share purchase agreement. Zydus Lifesciences will pay Rs. 106 crore for the equity stake, providing Mylab with the necessary funds to further its business in the diagnostics field.

Mylab Discovery Solutions is involved in the research, development, manufacturing, marketing, and sale of in-vitro diagnostics kits, equipment, reagents, and related therapeutic products. They also offer portfolio solutions to other laboratories and hospitals. In the fiscal year ended March 31, 2023, Mylab reported a revenue of Rs. 95 crore, indicating its growth and potential in the diagnostics market.

With this investment, Zydus Lifesciences aims to enter the growing diagnostics sector and take advantage of the increasing demand for in-clinic solutions, particularly point-of-care testing devices. This move allows Zydus to diversify its business and tap into the opportunities presented by the expanding diagnostics market.

Dairy Giants FrieslandCampina and Mondelēz International Join Forces to Reduce Carbon Footprint



The partnership between FrieslandCampina and Mondelēz International aims to reduce the greenhouse gas emissions associated with milk supplied by FrieslandCampina's member dairy farmers. The goal is to achieve a 14% reduction in emissions by 2025 compared to the levels in 2019. This milk is used as an ingredient in Mondelēz International's chocolate and biscuit products in Europe.

FrieslandCampina and its dairy farmers are committed to producing net climate-neutral dairy by 2050. The company follows a strategy of measuring, acting, and monitoring to achieve sustainability goals. By collaborating with Mondelēz International, FrieslandCampina can reward its farmers for their efforts in reducing greenhouse gas emissions and invest in programs to continuously improve sustainability on the farms.

Mondelēz International recognizes the importance of dairy ingredients for its chocolate, biscuit, and cheese brands and has recently made sustainability a strategic pillar. The company is proud to partner with FrieslandCampina in Europe to support their initiatives in measuring and reducing greenhouse gas emissions.

The collaboration not only aims to

accelerate carbon reduction efforts in the dairy supply chain but also intends to inspire other companies to join and share best practices in sustainability.

Dairy farmers can implement various measures to reduce greenhouse gas emissions and combat climate change. These include implementing good agricultural practices, minimizing waste in the feed cycle, reducing soil tillage, and using local protein sources. FrieslandCampina's member dairy farmers can also generate renewable energy for use on the company's production sites.

FrieslandCampina uses the Annual Nutrient Cycling Assessment, a monitoring tool, to track the progress of sustainable farming practices. This tool provides farm-specific insights into carbon footprint size and biodiversity indicators. Through the Foqus planet Sustainable development program, member dairy farmers receive financial premiums based on their sustainability results in areas such as climate, biodiversity, pasture grazing, animal health, and animal welfare. This program enables farmers to have prior knowledge of the financial benefits associated with certain sustainability outcomes on their farms.

Innovative FEED Act proposed for non-nutritive feed additives

The Innovative Feed Enhancement and Economic Development (Innovative FEED) Act of 2023, introduced on June 8 by US senators Roger Marshall (R-Kan.), Jerry Moran (R-Kan.), Tamara Baldwin (D-Wis.), and Michael Bennet (D-Colo.), seeks to create a new category for animal food additives that have no effect on animal nutrition. This new category would allow these additives to be regulated as food additives rather than drugs, which would speed up their market entry.

The act proposes to amend the Federal Food, Drug, and Cosmetic Act to include zootechnical animal food substances. These substances would act in the animal's gut to provide health benefits, reduce emissions, or address concerns about human food safety.

The American Feed Industry Association (AFIA) has long advocated for FDA policies to be updated to exempt these substances from the drug approval process carried out by the FDA's Centre for Veterinary Medicine. Currently, the FDA lacks the authority to regulate these products as feed ingredients in the absence of congressional approval. Treating them as animal drugs restricts innovation and limits the ability of the animal food industry to provide solutions to public health and environmental challenges.

Several organisations, including the National Milk Producers Federation, the National Grain and Feed Association, and the American Feed Industry Association, support the legislation. The act seeks to establish a new pathway at the US Food and Drug Administration (FDA) for the approval of new and innovative feed additive products. This would increase meat and dairy production efficiency while decreasing byproducts. Currently, these feed additive products go through the FDA's eight- to ten-year process for animal drugs or the two-year process for feed ingredients.

The act seeks to level the playing field for US farmers and ranchers by establishing a new regulatory pathway for access to these technologies. Global competitors in Europe, Asia, and South America already have approved and available products in this category, and the Innovative FEED Act aims to keep US manufacturers competitive.

World Microbiome Day: HoloFood Data Portal to Transform Animal Feed Research

The HoloFood project, in collaboration

with the European Molecular Biology Laboratory's European Bioinformatics Institute (EMBL-EBI), has launched the HoloFood Data Portal. This portal provides free access to the project's findings, which focus on understanding the relationship between the diets of chickens and salmon and their complex microbiomes. The aim is to assist producers in creating better animal feeds and maximizing meat production, thereby promoting sustainable animal agriculture.

Developed with support from Horizon 2020, the HoloFood Data Portal enables researchers worldwide to explore the interplay between animals, their gut microbiomes, and their diets. By analyzing this data, researchers can develop improved and more sustainable feed options. It is the first freely accessible database of its kind and offers comprehensive information on the microbial diversity within the microbiomes of chickens and salmon.

One significant insight from the HoloFood project is the potential use of blue mussels as a sustainable alternative for salmon feed. Currently, farmed salmon are often fed fish meal made from wild-caught fish like anchovies and herring, contributing to the decline of fish populations. HoloFood found that blue mussels, which are abundant and easy to cultivate, could be a more sustainable alternative without compromising salmon health and meat quality.

The HoloFood Data Portal empowers scientists by providing them with an unprecedented amount of data and analysis tools. There are no restrictions on accessing and using the data, aligning with EMBL-EBI's open data approach. By making the research data openly available, researchers worldwide can pursue their own research questions and develop practical solutions related to food security.

The HoloFood project employed hologenomics, a scientific concept that considers the host animal and its interacting microorganisms as a unified entity called a holobiont. By studying the holobiont, the project collected information on host animal genomes, metagenomes, metabolomes, and



phenotypic data for chickens and salmon. This dataset allows researchers to investigate the impact of different feed types on crucial factors such as microbiome composition, growth, immune response, and meat quality.

The HoloFood Data Portal serves as a catalyst for global collaboration and knowledge sharing. By providing open access to the dataset, researchers worldwide can conduct in-depth investigations and gain new insights into sustainable animal feed development. The interconnectedness of the curated and annotated information in the portal can also facilitate the development of new tools and algorithms for understanding organisms within their environments.

The HoloFood project emphasizes that the data portal is just the beginning and encourages the generation of more data sets, the development of analysis tools, and the validation of these tools for sustainable food production. The ultimate goal is to accelerate the pace of discovery and develop practical solutions to global challenges such as food security.

Belarus and Russia Strengthen Agricultural Alliance with Uniform Agrarian Policy Program

The program to develop a uniform agricultural policy between Belarus and Russia has been gaining momentum and strengthening cooperation between the two countries. The Agriculture and Food Minister of Belarus, Igor Brylo, highlighted the significant growth in trade in food products between Belarus and Russia, which has increased by over 50% since the first forum in 2014. This

demonstrates the positive impact of the uniform agrarian policy program.

In preparation for the 10th Forum of Regions of Belarus and Russia held in Ufa, food supply contracts worth about RUB26 billion were signed, further enhancing the trade relationship between the two countries. The scope of this trade extends beyond traditional goods and includes high-tech agricultural products such as seeds, planting material, breeding stock, plant protection products, veterinary drugs, and feed additives.

In addition to trade, Belarusian and Russian universities have been collaborating closely. Four Belarusian universities and universities in Russia have signed 211 cooperation agreements in education and science. Over the past three years, the number of agreements has increased, and numerous joint events have been held for teachers, graduate students, and postgraduate students. Belarusian universities under the Ministry of Agriculture and Food offer advanced training programs, internships, and retraining courses to personnel in the agricultural sector.

A significant development in this collaboration is the partnership between the Belarusian State Agrarian Technical University and the Russian Academy of Personnel Support for the Agro-Industrial Complex. Together, they are completing a Union State project aimed at developing and improving professional training courses for managers and specialists in the agro-industrial complex. This project utilizes an innovative educational and scientific platform to prepare individuals to work in conditions involving sanctions and import substitution.

Overall, the joint program to develop a uniform agrarian policy of the Union State is expected to further enhance cooperation between Belarus and Russia in the agricultural sector. This program provides a framework for promoting interaction and collaboration, ensuring the growth and sustainability of the agricultural partnership between the two countries.

Editorial Calendar 2023

Publishing Month: January Article Deadline : 28th, Dec. 2022 Advertising Deadline : 30th, Dec. 2023 Focus : Climate Management	Publishing Month: February Article Deadline : 28th, Jan. 2023 Advertising Deadline : 30th, Jan. 2023 Focus : Nutritional Deficiency Effects	Publishing Month: March Article Deadline : 26th, Feb. 2023 Advertising Deadline : 28th, Feb. 2023 Focus : Herd / Breed Management - Fertility, Breeding & Reproduction	Publishing Month: April Article Deadline : 28th, March 2023 Advertising Deadline : 30th, March 2023 Focus : Disease Prevention/ Risk Assessment
Publishing Month: May Article Deadline : 28th, April 2023 Advertising Deadline : 30th, April 2023 Focus : Small Ruminants Management (Sheep, Goat etc)	Publishing Month: June Article Deadline : 28th, May 2023 Advertising Deadline : 30th, May 2023 Focus : Calf & Heifer Management	Publishing Month: July Article Deadline : 28th, June 2023 Advertising Deadline : 30th, June 2023 Focus : Milk Production Management/ Milking Practices	Publishing Month: August Article Deadline : 28th, July 2023 Advertising Deadline : 30th, July 2023 Focus : Feed & Fodder
Publishing Month: September Article Deadline : 28th, August 2023 Advertising Deadline : 30th, August 2023 Focus : Vaccination Protocols/ Cattle Herd Immunization	Publishing Month: October Article Deadline : 28th, September 2023 Advertising Deadline : 30th, September 2023 Focus : Dairy By-products	Publishing Month: November Article Deadline : 28th, October 2023 Advertising Deadline : 30th, October 2023 Focus : Potential of Dairy Farming	Publishing Month: December Article Deadline : 28th, November 2023 Advertising Deadline : 30th, November 2023 Focus : Calf Management

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