

DAIRY PLANNER

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From the Pen of Chief Editor



Meeting of Demand for Processed Dairy Products Through A Proper Cold Chain Management

It's evident that consumers' inclination has shifted thoroughly toward healthy meals and nutrition-rich products. This has resulted in a steady predisposition to dairy products consumption rich in nutrients.

The driving force toward meeting the dairy needs is better dairy processing units and storage facilities. The current situation demands ample capacity storage, cold storage facility, increased transportation, and better infrastructure to meet such a demand.

The dairy industry witnessed an enormous transition during the post-Covid era, resulting in an intense need for cold chain distribution and management. The quality and standard of processed dairy products can only be maintained if proper cold chain management is implemented.

As far as the economy is concerned, a huge gap can be met in the employment generation opportunity for third-party logistics to meet the increased demand in cold chain management facilities. Overall, it can decrease the cost of production and supply, and economies at scale can significantly impact increasing the profit of the processed dairy sector.

The challenges of shelf life and durability of processed milk and milk-based products can only be met if proper facilities for adequate storage through cold chain management are adapted.

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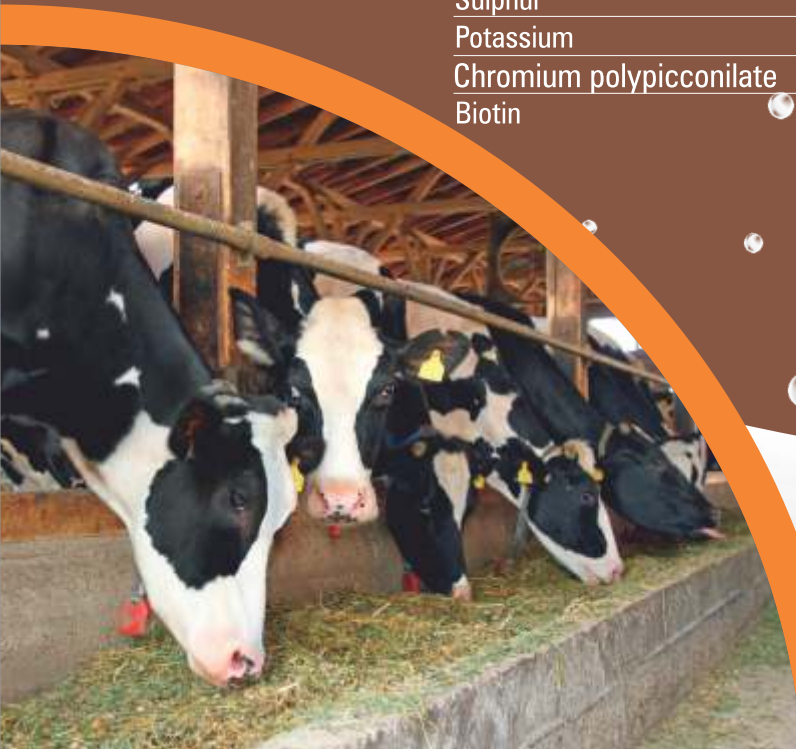
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Ethics Related to Use of Animals In Biotechnology



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“ Introduction

Biotechnology is the use of organisms or enzymes to get valuable products. But in some process it has some ethical issues such as manipulation of genes in recombinant DNA technology, genetically modified (GM) organisms such as transgenic animals. Ethical issues arise due to ecological harms, interference to nature, and community issues.

Ethics are system of moral principles (i.e.) rules or standards that govern the way people behave and their decisions on the right thing to do. An example is embryonic stem cell research. Researchers believe that this could have great potential for cure of incurable diseases. But some people in the society believe that it involves the use of fetus which has a potential to develop into human being.

Embryonic stem cell research

Pluripotent stem cell lines can be derived from the inner cell mass of the 5 to 7 days old blastocyst. It became objects of bioethical controversy mainly revolving around the issue of the moral status of human embryos. As a matter of religious faith and moral conviction, they believe that “Life begins at conception” and that an embryo is therefore an individual and destroying the life is unethical (Lo B and Parham L, 2009).

Gene manipulation

Usually, there are two types of gene manipulation occurs (ii) Gene repair can replace abnormal segments of DNA in defective genes in their normal chromosomal site. (iii) Gene replacement techniques permit excision of the abnormal gene from its chromosome and replacement with a normal gene. Gene therapy techniques can be broadly classified as somatic cell gene therapy and germ-line therapy. Germ-line gene therapy is far more technically difficult than somatic cell therapy and also faces lot of ethical issues comparatively. The controversies

include playing with nature or God. What will happen if new genetic modifications can lead to life threatening issues? We cannot able to control the undesirable effects (Sade RM and Khushf G, 1998).

Genetically-modified organisms

Genetically-modified organisms (GMOs) are produced by recombinant technology that alters the genetic machinery of such living organisms as animals, plants or microorganisms and the resulting organisms are usually termed as 'Genetically modified (GM)', 'Genetically engineered' or 'Transgenic'. The benefits include enhancement of animal health and productivity (milk, meat and eggs) by means of increased disease resistance and feed conversion ratio using biotechnological interventions. But the controversies include violating natural organisms' intrinsic values, tampering with nature by mixing genes among species and other unknown effects (Bawa and Anilakumar 2013).

Regulatory authorities

FDA (Food and Drug Administration) and the food industry represented by



COMMITTEE	FUNCTIONING UNDER
RDAC (Recombinant DNA Advisory Committee)	DBT (Department of Biotechnology)
RCGM (Review Committee on Genetic Manipulation)	DBT (Department of Biotechnology)
GEAC (Genetic Engineering Approval Committee)	MOEF (Ministry of Environment & Forests)
IBC (Institutional Biosafety Committee)	Research Institution/ Organization level
SBCC (State Biotechnology Coordination Committee)	State Government
DLC (District level Committee)	District Administration

the International Food Biotechnology Council (IFBC) monitors the use of animals in trials. The other regulatory agencies include U.S. Environmental Protection Agency (EPA) and USDA (United States Department of Agriculture). National Institute of health provides guidelines for Research Involving Recombinant DNA Molecules. There is a Recombinant DNA Molecule Program Advisor Committee working under NIH.

In India, Review Committee on Genetic Manipulation (RCGM) function under of Biotechnology (DBT) monitor the safety related aspects of ongoing recombinant DNA technology and activities involving Genetically Engineered (GE) organisms/ hazardous microorganisms. It is the regulatory body for receiving and reviewing the applications to conduct confined field trials (such as event selection trials, Biosafety Research Level I trials (BRL-I), pollen flow studies or any other trial involving GE organisms) and recommend appropriate studies to be conducted for data generation for biosafety assessment as per clause 4, as per the decision of the Genetic Engineering Approval Committee (GEAC) for its authorization. Below the table indicates the biotechnology authorities in India.

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Improving food & health

CAPSTONE:

Treated Water for Mixing Silage Inoculants

*Dr. Keith A. Bryan
Technical Services Specialist*

Water Treatment Systems for Dairy

There is no question that water quality is vitally important to cow health and productivity. In situations where water quality is sub-optimal due to contamination from minerals or microorganisms, water treatment systems have been installed on dairy farms and have successfully mitigated these contaminants. The vast majority of the systems currently in use include peroxide (H_2O_2) or chlorine dioxide (ClO_2) as the active ingredient.

Here are some notable highlights of these systems:

- Peroxide added to drinking water for dairy cows can range from 25 to 100 ppm H_2O_2 .
- Peroxide can be used quickly and converted rapidly to water and oxygen ($2 H_2O_2 \rightarrow 2 H_2O + O_2$) when the water is:
 - High in elemental iron (Fe),
 - At high concentrations of H_2O_2 ,
 - At temperatures above 55°F, or
 - High in non-mineral contaminants like coliforms or E. coli.
- Chloride dioxide added to water can range from 4 ppm Cl in the water trough to 500 ppm Cl in a highly concentrated form for eventual dilution.

Potential Issues with Treated Water

As these systems have been installed to mitigate water contamination by microorganisms, the logical question arises as to whether or not we can use water from these systems to mix silage inoculants.

Details for using treated water for mixing silage inoculants include:

- The basic 'rule of thumb' for mixing silage inoculants is, 'if you would drink the water, it is safe for use in mixing silage inoculants'.
- Regardless of system and additive, anti-microbial activity may remain and could negatively impact the viability of bacterial strains in Chr. Hansen science-based, research-proven silage inoculants.
- Water treated with peroxide-based systems should not be used for mixing silage inoculants, given the variability of residual peroxide in the water and its anti-microbial properties.
- Chlorinated drinking water (max. 4 ppm) may be safely used with Chr. Hansen inoculants.
- Water with more than 4 ppm chlorine is not considered potable, but 0.75 lb. of milk or whey powder added before the inoculant to 5 gal. of water can neutralize higher levels of chlorine, if other sources of water are unavailable.
- If you have any doubt or questions regarding the appropriateness of treated water for use in mixing Chr. Hansen silage inoculants, 'err on the side of safety' and either turn-off the water treatment system 24-hours before needed, or use clean, potable water from another source.

Additional practical guidance for optimizing performance of Chr. Hansen silage inoculants can be found in the Chr. Hansen Inoculant Handling Guide.





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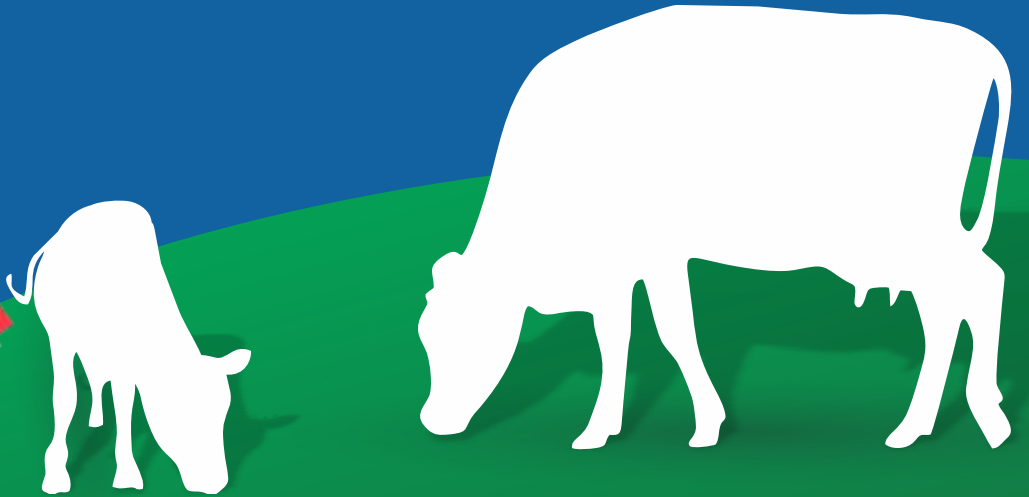
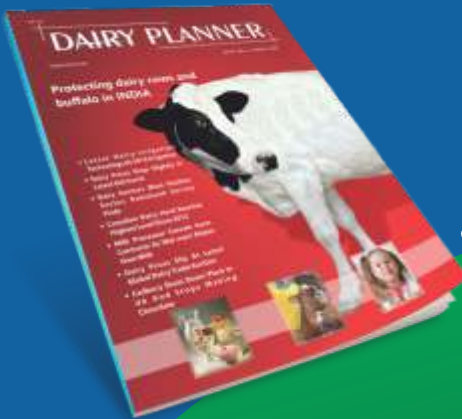
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Bypass – Protein in Dairy Animal Diet



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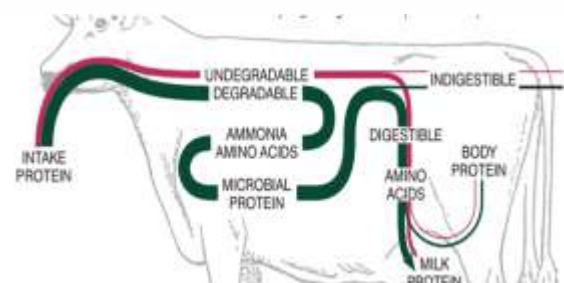


Introduction

Appropriate feeding of dairy cattle is of prime importance as feed costs account for more than half of the total costs of milk production. Feed shortage and imbalanced nutrition are major constraints to livestock productivity. Despite these shortages, there is tremendous scope to improve productivity of dairy animals by addressing the issue of imbalanced ratio. A balanced ration must provide adequate quantities of energy, protein, minerals and vitamins from green fodder, dry fodder, concentrates and mineral mixtures. Protein feeds being expensive and scarce, the existing protein resources must be used judiciously.

Bypass proteins is an efficient method of improving the protein availability in dairy animal's diet. These are new generation cattle feed in India and is manufactured by a special chemical treatment, developed by the National Dairy Development Board (NDDB). The ruminant animal has the unique advantage of microbial digestion in the rumen. They supply the major portion of the animal's protein needs as microbial protein. However, it is inefficient to feed an animal natural protein. The term "bypass protein" shows dietary protein that, either by some means of alteration

or because of type of protein is resistant to degradation by the rumen microbes. This undigested dietary protein would "bypass" the rumen and would be potentially available to meet the protein needs of the host animal after digestion in the small intestine.



Protein in ruminant feed

Proteins are biological polymers of amino acids linked together by amide links also called peptide bonds. They contain about 16% nitrogen. The dietary protein for ruminants refers as Crude Protein (CP) which consists of protein component as well as Non-Protein Nitrogen. The CP value is important since protein contributes energy, and provides essential amino acids for rumen microbes as well as the animal itself. Proteins are used for maintenance, growth, reproduction and during milk production in the udder. CP in ruminant diet can be divided into 2 categories based on its degradability during fermentation:



1. **Degradable intake protein (DIP)** - degraded in the rumen to meet the needs of the microbial population. Rumen micro flora breaks the DIP component into amino acids, peptides and ammonia (NH₃). This becomes a wasteful process when high quality proteins are broken down to ammonia, excess converted to urea in the liver and excreted through urine.

2. **Undegradable intake protein (UIP)** – proteins that bypasses the rumen to get utilized in small intestine after enzymatic digestion. It is used primarily to meet the extra productive needs of the animal by providing a different balance of essential amino acids for better animal production. Characteristics desirable for protected protein supplements is high level of crude protein with optimal essential amino acids profile & approximately 80 per cent of the UIP to be digestible in the small intestine.



7. it helps to control Salmonella and reduces mould growth i.e. better resistance against diseases.
8. Increase the supply of limiting amino acids like lysine and methionine to the small intestine.
9. Helps in increasing net daily income

Percentage Bypass estimates of protein sources

Protein source	% Bypass
Blood Meal	80
Meat Meal	64
Corn Gluten Meal	60
Brewer's Dried Grains	55
Distiller's Grains	54
Dehydrated Alfalfa	50
Oistiller I s Grains pl us Sol ubles	49
Soybean Meal	25

Protection of Ruminal Degradable Proteins

Protein and amino acid degradation in the rumen can be decreased by heat treatment (denatures protein with protein-carbohydrates cross links formation that gets protected against microbial attack), chemical treatment with formaldehyde, liginosulfates xylose, tannic acid, etc, use of amino acid analogues, encapsulation, selective manipulation of balances of rumen metabolic pathways and oesophageal groove closure and use of tannins, and aldehydes. Pelleting, steam rolling or flaking can denature feed protein; therefore protecting protein lysis in the rumen. Starch intrudes with the degradation of protein. It was found that addition of Amylases to cereal grains increased the total ruminal protein degradation.

Results Seen In Production in Dairy Cattles

In tropical conditions, bypass proteins can be fed even to the medium producing animals to increase their productivity. Protein supplement with high bypass value may be

considered to increase the milk production of high yielding cows in early lactation when basal diet is poor in nutritive value. Effect of feeding a concentrate mixture containing 37% CP as bypass protein (in experimental group) and concentrate mix containing 50% CP as bypass protein in cows yielding 8-10 litres of milk per day. The animals in experimental group recorded an increase of 1.07 litres of milk per day with a significant increase in fat, SNF and total solids. Whereas the feed costs were reduced, the income of the farmers increased. Higher milk yield in buffaloes fed with formaldehyde treated protein meal. It led to an increase in the yield of 6% Fat Corrected Milk and increase in daily milk production of the order of 1.2 kg per kg of bypass protein in animals fed with bypass protein over those fed with Urea Molasses Block(UMB)).

Conclusion

There remains tremendous scope to improve the production levels of the dairy animals even with the existing resources. It calls for a sustainable use of feeds and fodders and an improved efficiency of nutrient availability. Bypass feed technology has been suggested as one such intervention to improve the efficiency of dairy cattle nutrition.



Benefits -

National Dairy Development Board (India) has listed the following advantages of feeding bypass protein to ruminants:

1. Relatively cheap source of protein for animals
2. Availability of essential amino acids is increased
3. Improves milk production
4. Improves fat and SNF percent
5. Improved growth of young animals
6. Improvement in reproduction efficiency





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Moringa Oleifera is A Miracle Tree For Goat

One such ideal fodder tree for ruminants is Moringa (*Moringa oleifera* L.), popularly known as “drumstick tree” for its pods. This fast-growing tree native to Indian subcontinent is grown throughout the tropics for multi-purpose use viz. human food, livestock forage, medicine values, dye, water purification, and for its wide adaptability and ease of establishment. The developing countries which have high environmental temperatures, superior production is very indispensable to fulfill the requirement, so the problem of nutritional deficiency must be solved. The potential ecological heat stress has undesirable influences on growth performance, biochemical pathways, immune responses, electron balance, and physiological variables in animals.

One of the most serious problems facing animal producers, especially smallholder resource-poor farmers, is the ability and price of protein sources. This situation has led to consideration of alternative and less-expensive ingredients with adequate protein content and a balanced amino acid profile. Plant leaf meal and tree foliage are considered as cost-effective protein sources that can be used in ruminant feeding. The availability and price of concentrates, in particular of protein sources, are a serious problem for animal producers, especially for small farms stake holders. Consequently, there is a need for alternative ingredients with high protein content and balanced amino acids profile, and with a suitable cost. Plants leaf meal, forage trees, saltbush and shrubs are good and cheap sources of protein. One of these potential tree forages is *Moringa oleifera* Lam (syns. *Moringa pterygosperm*, family Moringaceae), which grows throughout the tropics.

The *Moringa oleifera* foliage (MF) is widely used for animal nutrition because it is non-expensive source of protein for

animal feeding and has the capability to be cultivated under different environmental and soil conditions. The dietary inclusion of MF in animal diets as a feedstuff is accepted for ruminants. MF is best recognized for enhancing the synthesis of the microbial protein in the rumen and has high levels of naturally useful components such as minerals, vitamin C, flavonoids, tocopherols, and phenolic compounds. The MF is an evergreen tree fodder and favorable as a substitute protein source that has been widely used for ruminant feeding. Therefore, the Moringa leaves are abundant throughout the year.

Nutritional value



The leaves have high protein content with various essential amino acids. In addition to various essential minerals present in the tree, healing properties and health benefits are also associated with this tree. These qualities packaged into a single tree may justify Moringa being termed as 'Miracle tree'. Besides being used for human consumption the leaves of this tree have been reported to be used as major component in animal feed/fodder.

The level of CP in MF leaf meal varies from 0.18 to 0.28 kg/kg dry matter (DM) and about 470 g/kg of the CP is rumen undegradable protein. Several reports confirmed that the inclusion of MF in the

goat's diets gave a better productivity and growth performance compared to the 100% conventional diets such as sesame meal. Recently, *Moringa oleifera* leaves are economically sustainable organic material, eco-friendly, and safe feed supplement for animals which improved growth, immunity, and contained antioxidant. The MF in an unconventional diet of up to 75% of DM, enhanced the ruminal fermentation, feed intake, and milk quality and quantity in lactating goats.

Moringa offers a good alternative source of protein with over 28% crude protein in leaves to ruminants wherever they thrive. There has been an increasing interest in the use of Moringa as a protein source for livestock. Laboratory analysis showed negligible amounts of tannins (1 to 23 g/kg) in all fractions of the *Moringa oleifera* plant and high levels of sulphur-containing amino acids. Macronutrients like P, K, Ca, and Mg play key roles in balancing the physiological, metabolic, and biochemical processes of livestock. Moringa leaves contain high amount of macronutrients Mg and K, and can be effectively used to fulfill the dietary and nutritional requirements of livestock animals by mixing of Moringa leaves. Moringa leaves contain a good amount of beta-carotene, vitamin C, calcium, magnesium and iron.

Since Moringa leaves are rich in protein, so can be used as a fodder for milch animals and other animals like goats. 92% of protein found in Moringa is digestible. Rather, its leaves contain much higher protein than conventional protein supplements like coconut meal,

Nutritional Profile of <i>Moringa oleifera</i>	
Metabolizable energy (MJ/kg DM)	9.30
Organic matter digestibility (%)	72.0
Ash(%)	13.2
Crude fiber (%)	10.0
Crude protein (%)	28.9
Fat (%)	6.73
Nitrogen Free Extracts (NFE) (%)	45.0
Neutral detergent fiber (NDF) (%)	16.7
Non fiber carbohydrate (NFC) (%)	38.4
Acid detergent lignin (%)	6.49
Cellulose (%)	5.59
Hemicelluloses (%)	4.66
Calcium (%)	2.62

cotton seed cake, ground nut cake, sesame cake, sunflower cake etc. Leaves also contain 8-9% lipids which are rich in Omega-3 fatty acids. Besides these, the leaves possess antioxidant and antimicrobial properties against several fungal species such as *E. coli*, *S. aroos*, *P. aeruginosa*, and *B. cereus*.

Moringa oleifera for goat

High environmental temperature is one of the most significant issues which threaten animals raised in tropical climates. In tropical region, the environmental temperatures vary significantly throughout the year. Currently, global warming has severe negative impacts on several agricultural economic sectors, particularly on the livestock industry. It has been documented that tropical region are the areas most affected by global warming; these regions are described by high environmental temperatures for a long time over the year, which cause environmental heat stress for goats. Moreover, it is characterized by a shortage of feed sources and water scarcities. Therefore, producing forages with a high level of crude protein (CP) in these areas is a potential approach for the sustainability of the livestock industry.

The *M. oleifera* may be considered as a good potential source of supplementary protein for ruminants. The amino-acid supply from this protein concentrate may be of particular nutritional significance as it may cover goat's protein needs and boost the immune system against diseases.

Moringa leaves, can be used as feed on goat farming. This is because Moringa leaves have a high enough nutritional value to be consumed by livestock. Various active substances are also found



in the moringa leaves. This active substance causes Moringa leaves has a myriad of benefits in the health. This is because all the active substances present in the moringa plant are scattered throughout the plant. However, the number of dissemination and concentration is different. The content of active substances in the moringa plant is a secondary metabolite substance. This substance consists of phenols, phenolic compounds, alkaloids, and essential oils. In addition to secondary metabolite, Moringa leaves also contain active compounds glucosinolat and isothiotianat. The active compound is known to have a function as a hypotensive substance. That's mean that it can improve blood pressure. Moringa leaves that given to goats can improve the performance. Moringa leaves can increase goat body weight, improve the digestion and absorption of nutrients to be more effective. This is as in the research that has been done by N. Sultana et al. He is a researcher from Malaysia UPM University. In his research, the moringa leaves given to goats in vary number. The sex of goats used in the study was male goats. While his age, still in infancy. In the given rations, there are different amounts of moringa leaves. The amount is 0%, 25%, 50%, & 75% even up to 100 percent. Zero percent mean that there is no moringa leaves at all. This is done to know the difference between goat with moringa leaves ration and goat ration without it. Briefly, the results of his research indicate that the more amount of moringa leaves in the ration, the more of rations eaten by goats. In addition, the highest daily weight gain is obtained by goats with a ration of 100% moringa leaves. ie as much as 61,74 grams per day. This is because the amount of crude protein in the ration will increase with the

increase of moringa leaves in the ration. So, the conclusion is that moringa leaves is very useful to be given to goat. Even according to the research, moringa leaves can be used as a single feed in breeding goats

Lucerne– A Short Duration Protein Fodder For Dairy Animal Feeding



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Introduction

Lucerne is a minor crop but protein rich fodder otherwise called as Alfalfa (*Medicago sativa*) is a leguminous forage crop. It is one of the most important legumes used in agriculture also termed 'Queen of forages'. The US is the largest alfalfa producer in the world, but considerable area is found in Argentina, Australia and South Africa. It is known as Kuthirai masal in Tamil, is mostly grown in the Coimbatore district of Tamil Nadu.

It is a cool season perennial legume growing from one to three years, depending on variety and climate. Alfalfa is highly nutritious and a natural source of nitrogen.

It produces small bunches of purple flowers with maximum height of up to one metre and has a deep root system which enables to produce good yields even under moisture stress conditions. This makes it very resilient, especially to droughts. Its extensive root system nourishes both plants and soil. It's ideal for improving the soil and providing erosion control.

Like other legumes, its root nodules having bacteria, *Sinorhizobium Meliloti*, with the ability to fix nitrogen resulting a high-protein rich fodder. Its nitrogen-fixing abilities, which increases soil nitrogen and use as animal feed greatly improved agricultural efficiency.



i. Vegetative stage



ii. Blooming stage

Kuthirai Masalis widely grown throughout the world as forage for cattle mostly harvested as hay, but can also fed as greenchop. Kuthirai Masal has the highest feeding value crop being used less frequently as pasture. Alfalfa has a wide range of adaptation and can be grown from very temperate agricultural regions to Mediterranean climates.

Its primary use is as feed for dairy cattle, and secondarily for horses, goats and sheep. Alfalfa is believed by some to be a galactagogue, a substance that induces lactation. It contains an elevated amount of calcium, vitamin E and carotene which are of major importance for milk production.

Suitable soil and location

Kuthiraimasal is suitable for wide range of soil types. Even though suitable for all type of soils fine and firm seedbed must be prepared for take up sowing. Heavy soil types may be avoided since the crop will not tolerate a waterlogged condition. Sufficient drainage to be provided so that the soil compaction could be avoided further, too much



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Weight gain
Herd economics
Reproductive performance

Improve Growth performance of heifers
Feed efficiency
Quality and dung scoring
Profitability, better milk fat, SNF

moisture can lead to mold growth.

Soil pH

Lucerne has a high requirement for calcium so that soils that are well drained with a pH of 6.0- 7.5 or higher levels are ideal. It comes up well on a soil with high pH and due to its deep root structure can cope up with sandy, alkaline soils of pH 8.5.

Variety

Variety Co1 is suitable for growing during July - December. Not suitable for very hot and very cold climates. The lucerne variety CO2 is released during 2013 from Tamil Nadu Agricultural University is a high green fodder yielding perennial crop was developed at the Department of Forage Crops, Coimbatore.

It is perennial nature has more number of stems and the leaves have high crude protein content of 23.5 % as against 20.5 in CO 1. Crop produces more number of flowers leads to set more number of seeds. It is highly palatable and suitable for livestock as green fodder. It produces green fodder yield of 130.6 t/ha /year which was 25.9 % green fodder yield over the variety CO 1. Dry matter yield content is 21.94 t/ha/yr in the first year and 10-16 tones in the second and third year. Crude fibre content is 19.2 per cent. First harvest can be done at 60 days after sowing and subsequent harvests are made at intervals of 25 - 30 days.

Inoculation with biofertilizer

For better root nodulation and efficient nitrogen fixing, seeds can be treated with *Rhizobium meliloti* culture. Inoculation is a simple process involving mixing the seed with a powder and rice gruel. Treated seeds allowed for shade drying before take up sowing so that it will not sticky with hand.

Sowing and spacing

For variety CO 1 recommended seed is rate 20 kg/ha. Lucerne seed is very tiny seed and sowing at deep will result poor germination. It can be sown as pure stand or with cereal or grasses. In case of pure stand, seeds can be sown with 25 cm row spacing. Advantage of growing in mixtures is, it act as smothering crop and suppress weed infestation at

establishment phase.

Weed control

At early growth stages lucerne grow little slower and will not compete with weeds so that weed control is essential. Summer sowings under irrigated condition is possible for lower weed competition than sowings in winter.

Pest and Diseases

There is no serious pest and disease was observed during growth stages of crop. For control pests or diseases few chemicals can be used. Pyrethroids can be used to control weevils attack at an early stage. Bio control agents might be used to control weevils, thrips, and aphids.

Harvest

For green fodder purpose first harvest at 55-60 DAS depending upon season. The subsequent harvest can be made 25-30 days intervals. Totally 12-14 harvest can be done in one year. Delaying cutting will result in lower quality of fodder due to increasing fibrous material leads to lower feed value. Most of the farmers harvest the crop at pre-flowering stage for better quality and yield so that protein content is slightly higher at pre flowering than that of harvest at after flowering stage.

Livestock feeding with Kuthirai masal

Like other green fodders lucerne can also be feed with animals as a normal and regular fodder. It can be fed along with other grass fodder. It used as green as well as dry fodder. Ensiling of lucerne is difficult so it can be fed with maize silage as an additive.

Advantages

- High yielding crop of 130 t/ha/year
- High protein content -23.5%
- No need to apply nitrogen fertilizer
- Weed smothering crop
- Forage rich in digestible fibre
- High levels of minerals and vitamins and contains high quality amino acids

Disadvantages

- Requires multiple cuts per year (12 to 14 harvests per year)
- Crop requires high requirement for potash, calcium and medium requirement for phosphate, sulphur and magnesium.
- Since slow growth at initial stage weeds may dominate
- If not managed correctly there may be increased risk of bloat in grazing animals
- Has a requirement for boron, molybdenum and manganese.

Key points to remember

- Lucerne is valued crop for its protein content and its drought tolerance nature
- Not suitable for water logged soil.
- Suitable for soil with higher pH levels.
- It can be fed with maize silage as balanced ration.
- Since lucerne is a slow establishment crop, when grown in mixtures, care should be taken so that lucerne gets smothered by its companion crop.



Dairy Animal Transportation Through Various Modes



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Introduction

Transportation refers to the movement of animals via one or more modes of transportation, as well as the associated procedures. It includes the time prior to loading, waiting intervals, transfer, rest periods, and unloading at the destination. The increased demand for proteins to feed the world's ever-increasing population has forced the industrialization and transportation of livestock via various modes of transportation across multiple ecological zones with varying weather conditions. Accompanied by a certified health certificate demonstrating the animals' suitability for transit and their freedom from any contagious or infectious disease; in the absence of this document, the carrier will refuse the consignment. Cattle that are hungry or thirsty should not be transported. Animals in advanced pregnancy should not be combined with young cattle to avoid cross-contamination. There are different mode of transportation of dairy animals from road, railways to airways.

1. Transport of animals by road or truck

This form of transportation is ideal for loading at the farm and direct transit to the market. The absence of regular handling and the consequent disruption prevents substantial weight loss. Poor road conditions and a longer distance to go result in a greater cost per km than railroads.

Precautions to be taken while transporting cattle by vehicle

- i. There is need to use a specially equipped vehicle with a special type of tailgate and side pads.
- ii. Normal vehicles need to equip the floor with non-slip materials such as coconut mats and wooden boards, and if the superstructure is low, they need to be lifted.
- iii. Vehicle should not carry more than 6 cows in number.
- iv. Each vehicle must be equipped with an attendant
- v. Do not load other goods into the vehicle while transporting livestock.
- vi. If possible, stand towards the engine so as not to surprise or injure the cow.

2. Transport of animals by train

Considerations while transporting the animal in a railway wagon includes:

- i. The normal space to be given per cattle in railroad cart should not be under two square meters.
- ii. Suitable rope and stages ought to be utilized for stacking cows from vehicles.
- iii. The dropped entryway of the cart might be utilized as an incline while stacking or dumping is done to the stage.



- iv. Cattle will be stacked after they are appropriately taken care of and given water.
- v. Cattle in cutting edge phase of pregnancy will not be blended in with young animals to avoid rush during transportation.
- vi. Watering and taking care of plans on course will be made and adequate amounts of water will be conveyed for crisis.
- vii. Adequate ventilation will be guaranteed.
- viii. An standard merchandise cart will convey not in excess of ten grown-up cows or fifteen calves on expansive check, not in excess of six grown-up dairy cattle or ten calves on meter measure, or not multiple grown-up cattle or six calves on tight check.
- ix. Every cart conveying cows will have no less than one specialist.
- x. Cattle will be stacked corresponding to the rails, confronting one another.
- xi. Padding like straw, will be put on the floor to keep away from injury in the event that a steers rests and this will not be under 6 cm thick.
- xii. To give sufficient ventilation, upper entryway of one side of the cart will be kept open appropriately fixed and the upper entryway of the cart will have wire measure firmly welded network plans to keep consuming soot from the motors entering the cart and prompting fire flare-up.
- xiii. Cattle carts ought to be connected in the train.
- xiv. Cattle-in-milk will be drained in some measure double a day and the calves will be given adequate amount of milk to drink.
- xv. Cattle might be moved during the evenings as it were.
- xvi. During day time, if potential, they should be dumped, took care of, given water and rested and if in milk, draining will be done.

3. Transport of animal by Sea transport

Considerations looked out while transporting the animal through sea includes:

- i. All ships itemized for conveying creatures will be assessed for fittings by a board comprising of a marine and a veterinary official.
- ii. The boat may ideally be of sanctuary deck type and have sufficient mechanical ventilation, great seepage and plans for practicing the creatures.
- iii. Providing extremely durable air trunks or electric powers on all decks will guarantee more ventilation.
- iv. Exhaust fans will be introduced to underneath out foul air.

4. Transport of animal by Air transport

Considerations taken care of while transporting the animal through air includes:

- i. Animals are either gotten in boxes of 2 to 3 creatures each.
- ii. The floors of airplanes are given safeguarded by a thick layer of wood shavings and covered with polyethylene sheets. Sides of the body are very much cushioned.
- iii. All airplane for moving creatures will be reviewed for fitting and so forth, by a load up involving an aviation based armed forces and veterinary official.
- iv. Loading will be affected through inclines or lifts.
- v. An specialist will go with the creature transfer.
- vi. A veterinary emergency treatment pack with the veterinarian will continuously be accessible in the airplane.
- vii. Coir matting will be put on the floor so that stacked creature doesn't deliver any sound during venture.
- viii. Feed groups will be put in the middle of the rear legs and sides of the airplane.

General conditions to be considered for transport of animals

- i. Healthy animals ought to be moved and a certified veterinarian ought to affirm it.
- ii. Young animals ought to be isolated from grown-up animals and

progressed pregnant state animals ought to be isolated from different animals.

- iii. When animals are shipped from endemic region, important authorization ought to be acquired from concerned experts for appropriate ailment.
- iv. Fourteen days preceding transportation vital inoculation technique ought to be finished for the specific animals.
- v. The vehicle ought to be inspected for tidiness, the floor and dividers will be intact and should be liberated from nails and other sharp edges.
- vi. The vehicle ought to be splashed with sanitizer arrangement. Adequate amount of feed and grain ought to be conveyed during transport.
- vii. Materials for bedding, for example, straw or feed ought to be put on the floor to stay away from injury and the sheet material ought not be under 5 cm thickness.
- viii. Animals during transport ought not be restricted at leg.
- ix. Each transfer will bear an intense red mark showing the accompanying specifics.
- x. Number and sort of animals stacked.
- xi. Name and address and phone number of the distributor (shipper) and representative (beneficiary).
- xii. Quantity of apportion to be taken care of.
- xiii. Consignee ought to be educated with regards to the train or vehicle in which the transfer of steers is sent and its appearance time ahead of time.
- xiv. In instance of excursion for over 12 hours a chaperon should be available at constantly and ought to guarantee the appropriate conditions are kept up with during transport.
- xv. Cattle, sheep and goat ought to be dumped by like clockwork and ought to be watered.

Prevention & Care Of The Udder Cleft In Dairy Cows With Intra Repiderma

Intra Repiderma – the green standard



Gerwen Lammers,
PhD



Jessie Hesseling,
DVM Master student

The consequences of udder skin issues are impaired animal welfare, reduced milk production and affected milk quality. Also, it can lead to premature culling. It is seen on 80% of the Dutch dairy farms, of which herd prevalence from 22% up to 51% have been reported. The number of udder skin issues on a farm is often underestimated. A high milk yield, digital dermatitis (DD), mange, mastitis and the conformation of the udder are suggested as risk factors.

Current prevention options are limited

Scientific research into treatment options for udder cleft problems in dairy cows is limited. Nevertheless, several scientific studies on the treatment of the bovine hoof and skin disorder DD have been published. Treatment with Intra Hoof-fit Gel, Intra Repiderma and Spray from Intracare has been proven successful several times, reporting a success rate of acute DD-lesions of 92.0, 86.8 and 79.0% (Holzhauer, 2011; Dotinga, 2017; Jacobs, 2018, respectively). As these products showed effectiveness on hoof and skin issues, they were considered to also have potential for the treatment of udder cleft skin issues, also taking into consideration that a spray is easy to use, even upside down.

Farm and study characteristics

The study was carried out on a Dutch dairy farm with approximately 250 pure Holstein Frisian cows located in the south of The Netherlands. The study was performed from April to June 2020 and lasted 12 weeks. The cows were housed

indoors in cubicles the whole year round. First- and second parity cows were housed separately from the older cows. The cubicles were covered with mattresses, lime powder and sawdust and cleaned out twice a day. Cows were milked twice a day in a conventional milking parlor. The average production level was 11,000 kg of milk/cow-year and the bulk milk somatic cell count varied between 95,000 and 162,000 cells/mL in the last 12 months.

Classification

The study was focused on score 0: a healthy udder and score 1: a mild UCD-lesion with erythema, transudate, crust or scabs and intact skin. All lactating



cows were

examined weekly for the presence and severity of these issues. The examination was performed in the milking parlor during milking, using a telescopic inspection mirror with lighting (Figure 1A). All data was collected by the same researcher (Jessie Hesseling, veterinarian in training at University of Utrecht) during the entire study period of 12 weeks, avoiding any inter-observer variation. The udder area was first

“Udder cleft issues like udder cleft dermatitis or foul udder are often located between the front teats and at the transition of the front quarters and the abdominal wall. Although this condition is well known in the dairy industry, not much research has been performed. Udder cleft skin problems are mostly diagnosed during milking or hoof trimming and is more frequently seen in older cows regardless of stage of lactation.”



carefully cleaned and dried with a towel, then covered with Intra Repiderma (Figure 1B). Cows with score 1 were treated every other day (Figure 1C). New cases found during the study period were included in the protocol as described above.



Figure 1. (A) The examination of the udders was done during milking in the milking parlor, using a telescopic inspection mirror with lighting. (B) Application of Intra Repiderma. (C) Example of a recovered udder cleft.

Assessment of improvement and recovery

The data was analyzed for the time in weeks to first improvement and recovery. At the start of the study, 42 cows of 262 examined cows had udder cleft issues and were thus selected. During the study period of 12 weeks, the average incidence decreased from 17.8% to 9.6% on this professional farm.

During the study, 22 cases were assessed at least six times and included in the analysis to determine the time to first improvement (from score 1 to 0) and time to full recovery (*Table 1*).

UCD-score	No. of animals	Improved % (n)	Median time to first improvement (weeks)	Recovered % (n)	Median time to full recovery (weeks)
1	22	81.8 % (18)	4	81.8 % (18)	4

Table 1. Number of animals and time to first improvement and recovery of udder cleft after using Intra Repiderma on mild score 1 udder cleft issues.

Of the 22 animals with UCD-score 1, 18 (81.8%) animals experienced complete recovery (score 0) of the udder skin, with a median time to this observation of 4 weeks (range 1-11 weeks). One spray can of Intra Repiderma is needed per 4 cows for an average of 4 weeks of use according to the protocol.

Early detection and prevention are of utmost importance

This is the first large-scale study that demonstrates the positive effect of the non-antibiotic Intra Repiderma spray on mild udder skin issues. Spraying of the mild udder skin cases (score 1) every 2 days resulted in 81.8% full skin recovery with a median time for recovery of 4 weeks.

Our results also emphasise that early detection is key to a good outcome. The udder cleft incidence on a farm is often underestimated, particularly on farms with a milking robot. Therefore, it is strongly recommended to regularly check the udders of all animals using a telescopic inspection mirror. Clean and dry any affected skin and evenly cover with Intra Repiderma spray from a distance of ~15 cm at least every other day until completely normal.



Watch the informative [video](#) on our Youtube channel

References of the full study of Jessie Hesseling are available upon request



पशुपालकों के सवाल और ग्रोवेल के डॉक्टर का जवाब— भाग 9



Mr. Rakesh Kumar
Growel Agrovet Private Limited
www.growelagrovvet.com



पशुपालकों के सवाल और ग्रोवेल के डॉक्टर का जवाब के इस लेख में पशु पोषण और पशुओं की बिमारियों से सम्बंधित पशुपालकों के सवालों का जवाब ग्रोवेल के डॉक्टर के द्वारा दी जा रही हैं। पशुपालक भाई, ग्रोवेल के डॉक्टर द्वारा दी सलाह के अनुसार पशुपोषण करें और पशुओं को बीमारी से बचने का उपाय और चिकित्सा की ब्यवस्था करें। पशुओं की स्वस्थ की उचित देखभाल और उचित पशुपोषण कर पशुपालक भाई एक सफल पशुपालक बन सकेंगे और एक लाभकारी पशुपालन कर सकेंगे। तो चलिए अब हम पशुपालकों के सवाल और पशु डॉक्टर के जवाब शुरू करते हैं:

पशुपालकों के सवाल : पशुओं को कितना आहार देना चाहिये ?

ग्रोवेल के डॉक्टर का जवाब: पशु का वनज जितना अधिक होगा, उसकी आहार की आवश्यकताएं उतनी ही अधिक होंगी। एक कुशल दूध देने वाली गाय को अपने शरीर के वनज के कम से कम 3: के बराबर प्रति दिन संतुलित सूखे पशुआहार की आवश्यकता होती है। उदाहरण: एक 600 किग्रा गाय को $600 \text{ किग्रा} / 3 = 18 \text{ किग्रा}$ प्रति दिन संतुलित सूखे पशु आहार आवश्यकता होती है। अधिक दूध देने वाली

गायें अपने शरीर के वनज का 4: से अधिक प्रति दिन संतुलित सूखे पशु आहार खाएंगी। उदाहरण: अधिक दूध देने वाली (30 लीटर/दिन से अधिक) 600 किग्रा गाय को $600 \text{ किग्रा} / 4 = 24 \text{ किग्रा}$ प्रतिदिन संतुलित सूखे पशुआहार प्रतिदिन की आवश्यकता होती है।

पशुपालकों के सवाल : यदि हरा चारा पर्याप्त मात्रा में उपलब्ध न हो तो क्या दाने की मात्रा बढ़ाई जा सकती है ?

ग्रोवेल के डॉक्टर का जवाब: हाँ, यदि हरा चारा पर्याप्त मात्रा में उपलब्ध न हो तो दाने की मात्रा बढ़ाई जा सकती है।

पशुपालकों के सवाल: पशु आहार सम्बन्धित क्या पशु का आहार घर में बनाया जा सकता है ?

ग्रोवेल के डॉक्टर का जवाब : हाँ, घर पर दाना मिश्रण बनाने के लिए निम्न छटकों की आवश्यकता होती है:—

- (क) खली = 25–35 किलो
- (ख) दाना (मक्का, जौई, गेहूं आदि) = 25–35 किलो
- (ग) चोकर = 10–25 किलो
- (घ) दालों के छिलके = 05–20 किलो



(ड) एक से दो किलो ग्रोवेल का मिनरल्स-मिक्सचर

खाने के बाद प्रति दिन ग्रोवेल का ग्रोवित पॉवर (Growvit Power) २०मिली. सुबह २०मिली शाम, पशु के मुँह में प्रति पशु देना चाहिये।

पशुपालकों के सवाल : पशुओं के लिए रोज़ घर में दाना मिश्रण बनाने की कोई सामान्य विधि बताएं ?

ग्रोवेल के डॉक्टर का जवाब : दाना मिश्रण बनाने की घरेलू विधि इस प्रकार है:- 10 किलो दाना मिश्रण बनाने के लिये: अनाज, चोकर और खली की बराबर मात्रा (3.3 किलोग्राम प्रति) डाल दें। इस मिश्रण में आधा किलो चिलेटेड ग्रोमिन फोर्ट (Chelated Growmin Forte) और आधा किलो इम्यून बूस्टर प्रीमिक्स (Immune Booster Premi) मिलायें। दाना बनाने के लिए पहले गेहूँ, मक्का आदि को अच्छी दर डालें। और खली को कूट लें। यदि खली को कूट नहीं सकते तो एक दिन पहले खली को किसी बर्तन में डालकर पानी में भिगोलें। अगले दिन उसमें बाकि अवयवों को (दाना, चोकर, नमक, खनिज मिश्रण) इसमें मिलाकर हाथ से मसल दें। इस दाने को कुतरे हुए चारे/घास में मिलाकर पशु को खिला सकते हैं।

पशुपालकों के सवाल: पशुओं के आहार व पानी की दिन चर्या कैसी होनी चाहिये ?

ग्रोवेल के डॉक्टर का जवाब:

- चारा बांट कर दिन में 3-4 बार खिलना चाहिये।
- दाना मिश्रण भी 2 बार बराबर- बराबर खिलाना चाहिये।
- हरा और सूखा चारा (भूसा और घास) मिश्रित कर खिलाना चाहिये।
- घास की कमी के दिनों साइलेज उपलब्ध कराना चाहिये।
- दाना, चारे के उपरांत खिलाना चाहिये।
- प्रति दिन औसतन गाय को 35-40 लीटर पानी कि आवश्यकता होती है। पानी में हमेशा जुनबनतम एकवाक्वोर मिलाकर देनी चाहिये।

पशुपालकों के सवाल: नवजात बछड़ों का पोषण कैसे करें ?

ग्रोवेल के डॉक्टर का जवाब: अच्छा पोषण ही बछड़ों- बछड़ियों को दूध/काम के लिये सक्षम बनाता है। नवजात बछड़ों के लिये कोलोस्ट्रल (खीस) का बहुत महत्व है। इससे बिमारियों से

लड़ने की क्षमता बढ़ती है। और बछड़े- बछड़ियों का उचित विकास होता है। इसके लिए बछड़ों-बछड़ियों को नियमित रूप से ग्रोवेल का अमीनोपॉवर (Amino Power) दें।

पशुपालकों के सवाल : बछड़ों-बछड़ियों को खीस कितना और कैसे पिलाना चाहिये ?

ग्रोवेल के डॉक्टर का जवाब: सबसे ध्यान देने योग्य बात है कि पैदा होने के बाद जितना जल्दी हो सके खीस पिलाना चाहिये। इसे गुनगुना (कोसा) करके बछड़े के भार का 10 वां हिस्सा वजन खीस कि मात्रा 24 घंटों में पिलाएं। जन्म के 24 घंटों के बाद बछड़े की आंतों की प्रतिरोधी तत्व (इम्यूनोग्लोब्यूलिन) को सीखने की क्षमता कम हो जाती है। और तीसरे दिन के बाद तो लगभग समाप्त हो जाती है। इसलिए बछड़ों को खीस पिलाना आवश्यक है।

पशुपालकों के सवाल : बछड़ों- बछड़ियों को खीस के इलावा और क्या खुराक देनी चाहिये ?

ग्रोवेल के डॉक्टर का जवाब : पहले तीन हफ्ते बछड़ों को उनके शरीर का दसवां भाग दूध पिलाना चाहिये। चौथे और पांचवे हफ्ते शरीर के कुल भाग का 1/15 वां भाग दूध पिलाएं। इसके बाद 2 महीने की उम्र तक 1/20 वां भाग दूध दें। इसके साथ-साथ शुरुआती दाना यानि काफ स्टार्टर और उसके साथ अच्छी किस्म का चारा के साथ मिनरल्स-मिक्सचर मिलाकर देनी चाहिये।

प्रश्न: मिल्क फीवर या सूतक बुखार क्या होता है ?

ग्रोवेल के डॉक्टर का जवाब : ये एक रोग है जो अक्सर ज्यादा दूध देने वाले पशुओं को ब्याने के कुछ घंटे या दिनों बाद होता है। रोग का कारण पशु के शरीर में कैल्शियम की कमी। सामान्यतः ये रोग गायों में 5-10 वर्ष कि उम्र में अधिक होता है। आमतौर पर पहली ब्यांत में ये रोग नहीं होता। इसके उपचार के लिए ग्रोवेल का ग्रो-कैल डी3 (Grow&Cal D 3) दें।

पशुपालकों के सवाल : मिल्क फीवर को कैसे पहचान सकते हैं ?

ग्रोवेल के डॉक्टर का जवाब : इस रोग के लक्षण ब्याने के 1-3 दिन तक प्रकट होते हैं। पशु को बेचैनी रहती है। मांसपेशियों में कमजोरी आ जाने के कारण पशु चल फिर नहीं सकता पिछले पैरों में अकड़न और आंशिक लकवा की स्थिति में पशु गिर जाता है। उसके बाद गर्दन को एक तरफ पीछे की ओर मोड़कर बैठा रहता है। शरीर का तापमान कम हो जाता है।

पशुपालकों के सवाल: खूनी पेशाब या हीमोग्लोबिन्यूरिया रोग क्यों होता है ?

ग्रोवेल के डॉक्टर का जवाब : ये रोग गायों-भैसों में ब्याने के 2-4 सप्ताह के अंदर ज्यादा होता है और गर्भवस्था के आखरी दिनों में भी हो सकता है। भैसों में ये रोग अधिक होता है। और इसे आम भाषा में लहू मूतना भी कहते हैं। ये रोग शरीर में फास्फोरस तत्व की कमी से होता है। जिस क्षेत्र कि मिट्टी में इस तत्व कि कमी होती है वहाँ चारे में भी ये तत्व कम पाया जाता है। अतः पशु के शरीर में भी ये कमी आ जाती है। फस्फोरस की कमी उन पशुओं में अधिक होती है जिनको केवल सूखी घास, सूखा चारा या पुराल खिलाकर पाला जाता है

पशुपालकों के सवाल: खुर-मुँह रोग की रोक-थाम कैसे कर सकते हैं ?

ग्रोवेल के डॉक्टर का जवाब: इस बीमारी की रोकथाम हेतु, पशुओं को निरोधक टीका अवश्य लगाना चाहिये। ये टीका नवजात पशुओं में तीन सप्ताह की उम्र में पहला टीका, तीन मास की उम्र में दूसरा टीका और उसके बाद हर छः महीने में टीका लगाते रहना चाहिये।

पशुपालकों के सवाल: गल घोंटू रोग के क्या लक्षण हैं ?

ग्रोवेल के डॉक्टर का जवाब: तेज़ बुखार, लाल आँखें, गले में गर्म/दर्द वाली सूजन गले से छाती तक होना, नाक से लाल/झाग दार स्त्राव का होना।

पशुपालकों के सवाल: पशुओं की संक्रामक बीमारियों से रक्षा किस प्रकार की जा सकती है ?

ग्रोवेल के डॉक्टर का जवाब :

- पशुओं को समय-समय पर चिकित्सक के परामर्श के अनुसार बचाव के टीके लगवा लेने चाहिये।
- रोगी पशु को स्वस्थ पशु से तुरन्त अलग कर दें व उस पर निगरानी रखें।
- रोगी पशु का गोबर, मूत्र व जेर को किसी गढ़ड़े में दबाकर उस पर विराक्लीन (Viraclean) डाल दें।
- मरे पशु को जला दें या कहीं दूर 6-8 फुट गढ़ड़े में दबाकर उस पर विराक्लीन (Viraclean) डाल दें।
- पशुशाला के मुख्य द्वार पर 'फुटबाथ' बनवाएं ताकि खुरों द्वारा लाए गए कीटाणु उसमें नष्ट हो जाएँ।

(च) पशुशाला की सफाई नियमित तौर पर विराक्लीन (Viraclean) से करें। पशुशाला को विषाणु रहित रखने के लिये, पशुशाला में नियमित रूप से विराक्लीन (Viraclean) का छिड़काव करनी चाहिये।

(छ) नियमित रूप से पशुओं को अमिनोपावर (Amino Power), ग्रौलिवफोर्ट (Growlive Forte), ग्रोकैलडी (Grow Cal D3) टॉनिक देनी चाहिये। पानी में हमेशा Aquacure एक्वाक्वोर मिलाकर देनी चाहिये।

पशुपालकों के सवाल : सर्दियों में बछड़े-बछड़ियों को होने वाली प्रमुख बीमारियों के नाम बताएं।

ग्रोवेल के डॉक्टर का जवाब :

क) नाभि का सड़ना

(ख) सफेद दस्त।

(ग) न्यूमोनिया

(घ) पेट के कीड़े

(ङ) पैराटाईफाइड

पशुपालकों के सवाल : पशुशाला की धुलाई सफाई के लिये क्या परामर्श है ?

ग्रोवेल के डॉक्टर का जवाब : पशुशाला को हर रोज पानी से झाड़ू द्वारा साफ कर देना चाहिये। इससे गोबर व मूत्र की गंदगी दूर हो जाती है। पानी से धोने के बाद एक बाल्टी पानी में विराक्लीन (Viraclean) डालकर धोना चाहिये। इससे जीवाणु, जूँ, किलनी तथा विषाणु इत्यादि मर जाते हैं, पशुओं की बीमारियाँ नहीं फैलती और स्वच्छ दूध उत्पादन में मदद मिलती है। पशुशाला को विषाणु रहित रखने के लिये, पशुशाला में नियमित रूप से विराक्लीन (Viraclean) का छिड़काव करना चाहिए।

पशुपालकों के सवाल : संकर पशुओं से कितनी बार दूध निकालना चाहिए ?

ग्रोवेल के डॉक्टर का जवाब : अधिक दूध देने वाले संकर पशुओं से दिन में तीन बार दूध निकालना चाहिये और दूध निकालने के समय में बराबर का अंतर होना चाहिये। अगर पशु कम दूध देता है तो दो बार (सुबह और शाम को) दूध निकालना उचित है, लेकिन इसके बीच भी बराबर समय होना चाहिये। इससे दूध का उत्पादन बढ़ जाता है और निश्चित समय पर पशु स्वयं दूध निकलवाने के लिए तैयार हो जाता है।

पशुपालकों के सवाल: दुधारू पशुओं को सुखाने का परामर्श डाक्टर क्यों देते हैं ?

ग्रोवेल के डॉक्टर का जवाब : ग्याभिन अवस्था में पशु और बच्चे दोनों को अधिक खुराक कि आवश्यकता होती है। अतः ब्याने से तीन माह पहले पशु का दूध निकालना बंद कर देना चाहिये, ताकि आगे ब्यांत में भी भरपूर दूध मिल सके।

पशुपालकों के सवाल: ग्याभिन पशु की पहचान कैसे की जा सकती है ?

ग्रोवेल के डॉक्टर का जवाब :

(क) ग्याभिन होने पर पशु दोबारा २०-२९ दिन गर्मी नहीं आती।

(ख) तीन चार मास में पशु का पेट फूला नज़र आने लगता है।

(ग) पशु कि गुदां में हाथ डालकर बच्चेदानी का दो में से एक हॉर्न का बढ़ा होना महसूस किया जा सकता है। लेकिन यह परीक्षण केवल प्राशिक्षित व अनुभवी पशुचिकित्सक से ही करवाना चाहिये।

पशुपालकों के सवाल: बछड़े- बछड़ियों में नाभि का सड़ना क्या होता है ? इसकी रोकथाम के उपाय बताएं।

ग्रोवेल के डॉक्टर का जवाब : इसे अंग्रेजी में "नेवलइल" कहते हैं। नवजात बछड़ों में सफाई की कमी से नाभि में पीप (मवाद) पड़ जाती है। नाभि चिप चिपी दिखाई देती है और उसमें सूजन व पीड़ा हो जाती है। बछड़ा सुस्त हो जाता है और जोड़ों के सूजने से लंगडाने लगता है। इसकी रोकथाम के लिये नाभि को किसी कीटनाशक से साफ करके पेन्सिलिन तब तक लगाएं जब तक नाभि सूख न जाए।

पशुपालकों के सवाल: बछड़े- बछड़ियों में सफेद दस्त क्यों होती है ?

ग्रोवेल के डॉक्टर का जवाब : अंग्रेजी में "व्हाइटसकाऊर " नामक यह प्राण घातक रोग है जोकि 24 घण्टे में ही बछड़े की मृत्यु का कारण बन सकता है। इसमें बुखार आता है, भूख कम लगती है और बदहज़मी हो जाती है। पतले दस्त होते हैं जिससे बदबू आती है। इससे खून भी आ सकता है। इससे बचाव के लिये बछड़ों को प्रयाप्त खीस पिलाएं। दस्त होने पर ग्रोवेल का एलेक्ट्रल एनर्जी (Electral Energy) दें। सुधार नहीं होने पर डॉक्टर से संपर्क करें।

पशुपालकों के सवाल: बछड़े- बछड़ियों में होने वाले न्यूमोनिया रोग पर प्रकाश डालें।

ग्रोवेल के डॉक्टर का जवाब : यह रोग गन्दे व सीलन वाले स्थानों में रहने वाले पशुओं में अधिक फैलता है। यह रोग 3-4 मास के बछड़ों में सबसे अधिक होता है। इस

रोग के लक्षण है - नाक व आंख से पानी बहना, सुस्ती, बुखार, साँस लेने में दिक्कत, खांसी व अंत में मृत्यु। इस घातक रोग से बचाव के लिये पशुओं को साफ व हवादार वाले बाड़ों में रखें। और अचानक मौसम/तापमान परिवर्तन से बचाएं। पशुशाला को विषाणु रहित रखने के लिये, पशुशाला में नियमित रूप से विराक्लीन (Viraclean) का छिड़काव करनी चाहिए।

पशुपालकों के सवाल: बछड़े- बछड़ियों को पेट के कीड़ों से कैसे बचाया जा सकता है ?

ग्रोवेल के डॉक्टर का जवाब : दूध पीने वाले बछड़ों के पेट में आमतौर पर लम्बे गोल कीड़े हो जाते हैं। इससे पशु सुस्त हो जाता है, खाने में अरुचि हो जाती है और आँखों की झिल्ली छोटी हो जाती है। इससे बचने के लिये बछड़ों को साफ पानी पिलाएं, स्वस्थ बछड़ों को अलग रखें क्योंकि रोगी बछड़ों के गोबर में कीड़ों के अण्डे होते हैं। कीड़े हो जाने पर कीड़े मारने के लिए किसी अच्छे कम्पनी का डीवार्मर दें, कीड़े से बचाव के लिए ग्रोवेल का ग्रोलिवफोर्ट (Growlive Forte) दें लाभ होगा।

पशुपालकों के सवाल: बछड़े- बछड़ियों में पैराटाईफाइड रोग के बारे में जानकारी दें।

ग्रोवेल के डॉक्टर का जवाब : यह रोग दो सप्ताह से 3 महीने के बछड़ों में होता है। यह रोग गंदगी और भीड़ वाली गौशालाओं में अधिक होता है। इसके मुख्य लक्षण - तेज बुखार, खाने में अरुचि, थंथन का सूखना, सुस्ती। गोबर का रंग पीला या गन्दला हो जाता है व बदबू आती है। इस रोग से बचाव के लिए साफ - सफाई का ध्यान रखें और रोग होते ही पशुचिकित्सक से संपर्क करें।

पशुपालकों के सवाल: बछड़ों में पेट के कीड़ों (एस्केरियासिस) से कैसे बचा जा सकता है ?

ग्रोवेल के डॉक्टर का जवाब : इस रोग की वजह से बछड़े को सुस्ती, खाने में अरुचि, दस्त हो जाते हैं। व इस रोग की आशंका होते ही तुरन्त पशुचिकित्सक से संपर्क करें।

पशुपालकों के सवाल: पशुओं में अफारा रोग के क्या-क्या कारण हो सकते हैं ?

ग्रोवेल के डॉक्टर का जवाब :

क) पशुओं को खाने में फलीदार हरा चारा, गाजर, मूली, बन्दगोभी अधिक देना विशेषकर जब वह गले सड़े हों।

- (ख) बरसीम, ब्यूसॉन, जेई, व रसदार हरे चारे जो पूरी तरह पके न हों व मिले हों।
- (ग) भोजन में अचानक परिवर्तन कर देने से।
- (घ) भोजन नाली में कीड़ों, बाल के गोले आदि से रुकावट होना।
- (ङ) पशु में तपेदिक रोग का होना।
- (च) पशु को चारा खिलाने के तुरन्त बाद पेट भर पानी पिलाने से।

पशुपालकों के सवाल: पशुओं में अफारा रोग के क्या-क्या लक्षण हैं ?

ग्रोवेल के डॉक्टर का जवाब :

- (क) अफारा रोग के लक्षण भुतस्पष्ट होते हैं। बाईं ओर की कील फूल जाती है और पेट के आकार बढ़ा हुआ दिखाई देता है।
- (ख) पेटदर्द और बेचैनी के कारण पशु भूमि पर पैर मारता है और बार-बार डकार लेता है।
- (ग) रयुमन का गैसों से अधिक फूल जाने के कारण छाती पर दबाव बढ़ जाता है जिससे साँस लेने में तकलीफ होती है।
- (घ) पशु खाना बन्द कर देता है और जुगाली नहीं करता।
- (ङ) यह समस्या भेड़ों में अधिक गंभीर होती है और अधिक अफारा होने पर उनकी मृत्यु हो जाती है।

पशुपालकों के सवाल: पशुओं में अफारा रोग हो जाने पर इलाज का प्रबंध कैसे करें ?

ग्रोवेल के डॉक्टर का जवाब: अफारा होने पर इलाज में थोड़ी देरी भी जानलेवा हो सकती है। अफारा होने पर निम्नलिखित उपाय करे जा सकते हैं:-

- (क) रोगी पशु का खाना तुरन्त बन्द कर दें।
- (ख) तुरन्त डाक्टर से संपर्क करें। ध्यान रहें की दवाई देते समय पशु की जुबान न पकड़ें।
- (ग) जहां तक हो सके पशु को बैठने न दें व धीरे-धीरे टहलाएं। इससे अफारे में आराम मिलेगा।
- (घ) पशु को साफ व समतल जगह पर रखें।
- (ङ) अफारा का इलाज बहुत सरल है, पशु को ग्रोलिवफोर्ट (Growlive Forte) सुबह - शाम नियमित रूप से दें।
- (च) अफारा उतर जाने पर तुरन्त खाने को नही देना चाहिये जब तक पेट अच्छे से साफ न हो जाए।

पशु पालकों के सवाल: पशुओं में अफारा रोग से कैसे बचाव करना चाहिये ?

ग्रोवेल के डॉक्टर का जवाब:

- (क) पशुओं को चारा डालने से पहले ही पानी पिलाना चाहिये।
- (ख) भोजन में अचानक परिवर्तन नहीं करना चाहिये।
- (ग) गेहूँ, मकाई या दूसरे अनाज अधिक मात्रा में खाने को नहीं देने चाहिये।
- (घ) हरा चारा पूरी तरह पकने पर ही पशुओं को खाने देना चाहिये।
- (ङ) पशुओं को प्रतिदिन कुछ समय के लिये खुला छोड़ना चाहिये। पशु को ग्रोलिवफोर्ट (Growlive Forte) सुबह - शाम नियमित रूप से दें, फायदा होगा।

पशुपालकों के सवाल: पशुओं में लंगड़ा बुखार कब और कहाँ होता है ?

ग्रोवेल के डॉक्टर का जवाब : यह रोग बरसात शुरू होते ही फैलने लगता है। गर्म और आद्र क्षेत्रों में यह रोग आमतौर पर होता है। जिस जगह यह रोग एक बार हो जाए वहाँ ये प्रायः हर वर्ष होता है। इस रोग का हमला एक साथ बहुत से पशुओं पर तो नहीं होता पर जो पशु इसकी चपेट में आ जाए वो बच नहीं पाता। इस रोग को "ब्लैकक्वार्टर", "ब्लैकलैग" व पुट्टे की सूजन का रोग भी कहते हैं।

पशुपालकों के सवाल: लंगड़ा बुखार होने का क्या कारण है ?

ग्रोवेल के डॉक्टर का जवाब: यह रोग गौ जाति के पशुओं में क्लोस्ट्रीडियम सैप्टिक नामक कीटाणु से होता है। ये कीटाणु पशु के रक्त में नही बल्कि रोगी की माँस-पेशियों व मिट्टी तथा खाने-पीने की वस्तुओं में पाया जाता है।

पशुपालकों के सवाल: पशुओं में लंगड़ा रोग के लक्षण बताएं ?

- ग्रोवेल के डॉक्टर का जवाब:** पशुओं में लंगड़ा रोग के निम्नलिखित लक्षण हैं:-
- (क) पशु पिछली टांगों से लड़खड़ता है व कांपता है।
- (ख) पुट्टे में सूजन आ जाती है।
- (ग) शरीर के अधिक मास वाले भाग (गर्दन, कंधे, पीठ, छाती आदि) में भी सूजन हो सकती है।
- (घ) सूजे हुए भाग पहले सख्त, पीड़ा दायक व गर्म होते हैं। इनमें एक

प्रकार की गैस पैदा हो जाती है। रोग के लक्षण प्रकट होने के 48 घण्टे में रोगी की मृत्यु हो सकती है। रोग के लक्षण दिखते ही स्थानीय डॉक्टर से संपर्क करें।

पशुपालकों के सवाल: पशुओं में लंगड़ा रोग का इलाज कैसे करना चाहिये ?

ग्रोवेल के डॉक्टर का जवाब: एंटीबायोटिक दवा और टीका लाभकारी होता है। लेकिन ये टीका आरम्भ में ही लाभदायक होते हैं।

पशुपालकों के सवाल: पशुओं को लंगड़ा रोग से कैसे बचाएं ?

ग्रोवेल के डॉक्टर का जवाब: जिस क्षेत्र में यह रोग होता है वहाँ के पशुपालक अपने 4 मास से 3 वर्ष के सभी गौ जाति के पशुओं को इस रोग के बचाव का टीका अवश्य लगवाएँ। इस टीके का असर 6 माह तक रहता है। मई में यह टीका अवश्य लगवा लेना चाहिये। भेड़ों में उन कतरने या बच्चा देने से पहले यह टीका लगवा लेने चाहिये।

पशुपालकों के सवाल: पशुओं में लंगड़ा रोग फैलने पर क्या करना चाहिये ?

ग्रोवेल के डॉक्टर का जवाब:

- (क) पशुचिकित्सक से तुरन्त संपर्क करके बचाव टीका (वैक्सीन) पशुओं को लगवा लेना चाहिये।
- (ख) रोग कि छूत फैलने से रोकने के लिये मरे पशुओं व भूमि में 2-2.5 मीटर की गहराई तक चूने से ढक कर दबा देना चाहिये।
- (ग) जिस पशु घर में किसी पशु की मृत्यु हुई हो उसे विराक्लीन (Viraclean) मिले पानी से धोने चाहिये। फर्श पर और पशुशाला में विराक्लीन (Viraclean) का छिड़काव करें।

पशुपालकों के सवाल : पशुओं में लंगड़ा रोग की छूत कैसे लगती है ?

ग्रोवेल के डॉक्टर का जवाब: गौ जाति के पशुओं में इस रोग कि छूत खाने-पीने की वस्तुओं द्वारा फैलती है। भेड़ों में यह रोग ऊन उतारने, पूछें काटने और नपुंसक करने के पश्चात हो सकता है।

पशुपालक भाई इस लेख में दिये गये ग्रोवेल के डॉक्टर के सलाह को अमल करें और सफल और समृद्ध पशुपालक बनें और अपने पशुपालक मित्रों का भी मार्गदर्शन करें।

March 2022

1. EuroTier Middle East

Dates: March 21- 23, 2022

Venue: Abu Dhabi, National Exhibition Centre (ADNEC),
Vereinigte Arabische Emirate

City: Abu Dhabi

Country: United Arab Emirates

Email: s.karaoglan@dlg.org

Website: www.eurotiermiddleeast.com

April 2022

1. Anuga Food Tec

Dates: April 26 -29, 2022

Venue: Cologne Trade Fair Center

City: Cologne

Country: Germany

Website: www.anugafoodtec.com

August 2022

1. ILDEX Vietnam 2022

Dates: August 3-5, 2022

Venue: SECC, HCM

City: Ho Chi Minh City

Country: Vietnam

Email: panadda@vnusiapacific.com

Website: www.ildexvietnam.com

2. Livestock Malaysia

Dates: August 10 - 12, 2022

Venue: MITC Complex

City: Melaka

Country: Malaysia

Email: livestockmalaysiamy@informa.com

Website: www.livestockmalaysia.com

3. Livestock Phillipines 2022

Dates: August 24 - 26, 2022

Venue: World Trade Center

City: Pasay city

Country: Phillipines

Email: rita.lau@informa.com

Website: www.livestockphilippines.com

September 2022

1. Victam Asia 2022

Dates: September 7 - 9, 2022

Venue: IMPACT Exhibition Center

City: Bangkok

Country: Thailand

Website: www.victamasiasia.com

October 2022

1. World Dairy Expo

Dates: October 2 - 7, 2022

Venue: Alliant Energy Center

City: Madison, Wisconsin

Country: United States

Website: www.worlddairyexpo.com

2. Sommet-elevage, France

Dates: October 4 - 7, 2022

Venue: Grande Halle Showgrounds

City: Ferrand

Country: France

Website: www.sommet-elevage.fr

3. VIETSTOCK 2022

Dates: October 12 - 14, 2022

Venue: Saigon Exhibition & Convention Center (SECC)

City: Ho Chi Minh City

Country: Vietnam

Website: www.vietstock.org

November 2022

1. EuroTier

Dates: November 15 - 18, 2022

Venue: Deutsche Messe AG

City: Hannover

Country: Germany

Website: www.eurotier.com

December 2022

1. Agri Livestock 2022

Dates: December 2 - 4, 2022

Venue: Myanmar Expo Hall

City: Yangon

Country: Myanmar

Website: www.agrilivestock.net



A CHALLENGING JOURNEY OF OSAM DAIRY



India is known to be a milk-rich country having tonnes of dairy suppliers. **Osam Dairy, a brand under Jharkhand based company, H.R. Food Processing Private Limited, has left no stone unturned in significantly achieving profit in such a competitive market.**

The journey started in 2012 by setting up dairy farms by four friends turned partners, namely Abhinav Shah, Harsh Thakkar, Rakesh Sharma, and Abhishek Raj. They had sold over 1000 liters of milk by the end of the year, and their journey began. C.A. Abhinav previously worked as a manager in Ernest & Young till January 2012; C.A. Rakesh worked for a variety of MNC, CA Abhishek worked with MNC and delivered the idea of startup first, whereas Rakesh got into the FMCG business.

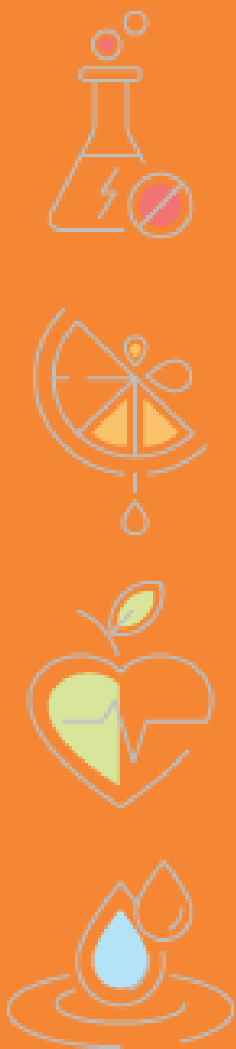
Initially, the team purchased 40 animals and lost 26 of them to disease but did not lose hope and pooled capital from

savings and started its business. After getting an **FSSAI license**, they started selling unbranded raw milk through door-to-door selling. The sales rocketed from 300 litres, which jumped to 1,000 litres in six months, and the company soon gained pace in the distribution sector. The company became operational in 2017 after the Patratu plant construction, **a fully-automated, 50,000-liter plant** where no physical contact is required.

In 2003, it raised its first round of funding from Aavishkar Ventures. The other investors include Lok Capital and CDC Group, which believes in Osam Dairy and its long-term goals. They also hired industry experts from the dairy business who helped the company achieve great heights.

With 140 distributors and over **3,000 retailers** in Jharkhand, Osam Dairy currently operates in 19 districts and aims to spread its roots deeper into the Bihar and West Bengal dairy segment.





Their team started with seven employees and now has more than **450 employees** delivering daily service to thousands of people. Approximately **20,000 livestock** farmers regularly supply the company with milk, which is then distributed through **250 distributors** and over **8,000 retailers** in Bihar and Jharkhand.

Osam Dairy's mission includes creating a dairy brand that inspires confidence amongst consumers for its unfailing quality, processing, and infrastructure delivering nutrient-rich and hygienic products to mass. **The milk is assumed to be 100% pure without any adulteration, filled with ample calcium and proteins, freshly delivered, having no preservatives.**

Assocham & Ministry of Agriculture awarded Osam as the **'Best Company' in Agriculture & Dairy Category** and received the Best Young Dairy award from the Jharkhand Government in 2013 and the Most Promising Dairy Brand award by Assocham in 2016.

Dairy milk costs about **Rs 21 for half a litre** and is sold in 14,000 retail outlets in 24 districts in Jharkhand and six districts in Bihar. The company is expected to cross a turnover of Rs.500 Crore by 2022. Having built its foundations on milk, Osam Dairy now makes value-added dairy products, including dahi (curd), paneer, lassi, peda, and more. They aim at expanding its market reach and serving all over the country.





Mother Dairy Bringing Milk to Classrooms



Mother Dairy has always been part of a noble initiative towards showcasing the importance of milk and spreading awareness for milk consumption. Mother Dairy has been engaged in various CSR schemes for spreading such awareness.

In 2021-2022, Mother dairy contributed generously toward the milk scheme in the distribution of free milk to school children in the Muzzaffarnagar district of Uttar Pradesh. The main objective was to eradicate malnutrition and provide free milk to schools, especially government or municipality-owned, with children mainly from economically weaker sections.

Previously in the years 2019-2021, Mother Dairy had engaged in a gift milk scheme started in 2016 with NDDB Foundation. Their main focus was to address the issue of undernourishment and malnutrition and also to help poor producers of milk. Their initiative involved supplying and distributing milk to school children in Nagpur, Maharashtra.

The estimated aim is to provide more than 200 ml of milk every day under the Gift milk programme. The consumption of milk by economically weaker sections through schools can help children get adequate nutrients and vitamins and help in the healthy nourishment of the body. The noble CSR initiative can help children gain insufficient nutrition and prevent permanent physiological changes.



Nutrition Division of Carus Laboratories

has recently conducted their Q1, 22 Meeting in OmAng Hotel, (Karnal)



“ORT LRG” A Nutritive Marvel” the much-awaited Electrolyte product of Carus laboratories has been launched on 29th March 2021 in a glittering ceremony done at OmAng hotel (Karnal).

The launch took place in the presence of field teams from across the cities and States, their presence adding much gravitas to the event. The entire Nutrition Division Team was excited to welcome its new member into the family. The energy throughout the launch event justifies the ORT-LRG tagline “New Scientific Solution for All types of Stressors”.





AMUL LAUNCHES MICRO ATM SERVICES IN GUJARAT

Amul launched its ATM project (DGV PAY) at Sarvottam Dairy (Bhavnagar DudhSangh) in Gujarat. The main aim of Amul is to extend its banking services to its member milk producer. In remote villages, digital banking technology is lacking, which led to this initiative. The launch has facilitated cash withdrawal through an electronic data capture (EDC) machine with a finger scanner option.

Previously Amul has taken many initiatives for concrete steps to digitalize the rural economy. Through Amul Micro ATM, members of Sarvottam Dairy could withdraw their money from the milk society and receive their payment immediately, which can benefit the nearby local dairy farmers.

Amul had been working on such projects for quite a long time. It has previously launched Micro ATM services at Anandpara Village Dairy Co-operative Society of Rajkot milk union. With the support of GCMMF, Digivridhi and Federal Bank, a Micro ATM system has been developed by Amul Micro ATMs for the villages in association with GCMMF.

This project was driven by the partnership between Digivridhi and Federal Bank, which arranged for cash delivery in villages, a significant challenge. In addition to building confidence among small, marginal, and landless farmers, this project will cultivate a habit of saving for the future.







Union Minister **PARSHOTTAM RUPALA** Calls For The Creation of Animal Disease Free Zones

Parshottam Rupala, Union Minister for Fisheries and Animal Husbandry called on stakeholders on 24th March, 2022, to work towards creating value-added meat export zones in various regions of the country to boost exports.

The Agricultural and Processed Food Products Export Development Authority (APEDA), the union minister, addressed that even in the case of a single outbreak of disease amongst poultry birds, the entire country is referred to as 'disease affected.'

While referring to the Sikkim model, which has declared an organic state and its products command a premium in the market, Parshottam Rupala stated all the stakeholders must take small steps and work to declare small regions- a few districts at a time, as disease-free.

He also advised the livestock industry to leverage the schemes of the Ministry of Food Processing Industries, Animal, Husbandry Infrastructure Development Fund and the National Livestock Mission to set up animal farms for producing quality livestock. Additionally, the minister released two manuals on exports of value-added meat products and pork & pork products.

Previously, Prime Minister Narendra Modi launched the National Animal Disease Control Program in September 2019 to combat FMD and Brucellosis in cattle. Over 600 million cattle across the country will be vaccinated under this Central Government scheme to mitigate the two diseases, which has been budgeted for Rs.12652 crore.



A photograph showing three men in a dairy farm setting. They are standing in a barn, looking at a bundle of hay held by one of the men. In the background, several cows are visible in their stalls. The scene is well-lit, suggesting an indoor farm environment.

Friesland Campina and DSM Take Major Step to Reduce Greenhouse Gas Emissions From Dairy Cattle

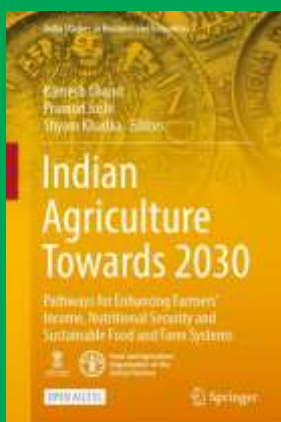
It's a European first by FrieslandCampina: a large-scale pilot project to gain practical experience with Bovaer®, DSM's innovative feed additive that consistently reduces methane emissions from cows by around 30 percent. Following EU approval for the additive's use in February 2022, the parties have decided to launch this pilot immediately. The Dutch feed supplier Agrifirm will supply the feed additive to the participating farmers. Through innovations like this, Dutch dairy farmers can build on sustainability improvements over recent years and contribute to a sustainable food production system.

The Bovaer® pilot collaboration between the Dutch companies FrieslandCampina, DSM, and Agrifirm marks an important step forward in increasing the sustainability of the dairy sector. Some 200 FrieslandCampina dairy farms in the Netherlands will take part in the pilot in the second half of 2022. Providing the results are positive, the use of Bovaer® will be further upscaled from 2023.

Hein Schumacher, CEO of Royal FrieslandCampina: "Our ultimate goal is for all of our dairy products to be climate neutral. Though we can't achieve this overnight, we're working toward it. In addition to solutions like switching to green energy – preferably generated by our members – reducing the greenhouse gas emissions of our cows is one of the routes towards reaching our climate goal. This requires innovation – and now Bovaer, a truly innovative feed additive from DSM that significantly reduces cows' methane emissions, is part of the solution. We know that our members are always open to innovation and improvements in our sustainability performance, and with this pilot we will be the first dairy company in Europe to gain valuable practical experience with Bovaer."

Dimitri de Vreeze, Co-CEO of Royal DSM: "There's no time to lose when it comes to reducing greenhouse gas emissions. Cutting methane emissions is the fastest way to combat global warming, as was underlined during the most recent UN Climate Change Conference in Glasgow. I'm proud that we, FrieslandCampina and DSM, can offer dairy farmers a solution that will help to make a major contribution toward tackling one of the greatest challenges of our time. Collaboration, new ways of thinking and pioneering innovations are crucial to making dairy farming more sustainable. It's important that dairy farmers are rewarded for their sustainability performance."

New Book Launch by Shri Narendra Singh Tomar Named Indian Agriculture Towards 2030



At an event organized by NITI Aayog and the Food and Agriculture Organization (FAO) of the United Nations, Union Minister of Agriculture and Farmers' Welfare (MoA&FW), Narendra Singh Tomar, released his book.

The book *Indian Agriculture towards 2030: Pathways for Enhancing Farmers' Income, Nutritional Security and Sustainable Food and Farm Systems* include various themes. It also captures outcomes of the deliberative process of national dialogue by NITI Aayog and the Ministries of Agriculture and Farmers' Welfare; and Fisheries, Animal Husbandry, and Dairying facilitated by FAO since 2019.

Professor Ramesh Chand, a member of the NITI Aayog, and CEO Amitabh Kant were present at the event. In his congratulatory speech, the union minister also said, "With the efforts of all the stakeholders, including experts, the hard-working farmers, and agricultural scientists, we will be able to handle the challenges identified and take Indian agriculture and the country to new heights."

Ramesh Chand, NITI Aayog Member Professor and editor of the book, also stated that agriculture is facing globally considering unprecedented challenges. In India and the opportunities that exist, there is a need for a transformative vision for the next decade. Realizing this need, a national dialogue was initiated to think through this transformation—its essential elements and what it means for policy and practice.

BIS in Association with CLFMA Organised Awareness & Implementation Webinar on 16th March 2022 on The Topic “Indian Standards on Cattle Feed & Feed Ingredients”



AWARENESS & IMPLEMENTATION WEBINAR

INDIAN STANDARDS ON CATTLE FEED & FEED INGREDIENTS



On 16 March 2022, BIS in association with CLFMA OF INDIA organized an “Awareness and Implementation Webinar on ‘Indian Standards on Cattle feed and feed ingredients’ from 15:00hrs. to 17:00hrs.

Inaugurating the Webinar, Shri. Sanjay Pant, Deputy Director General (Standardization-II), BIS, emphasized the Role of Indian standards to strengthen the Cattle feed sector in India. He assured handholding by BIS at every step to

support the Cattle feed industry in implementation and certification of Indian standards.

Ms Suneeti Toteja, Scientist E & Head, Food & Agriculture Department, BIS delivered Welcome & briefed on Programme Objectives.

Shri. Neeraj Kumar Srivastava, Chairman of CLFMA OF INDIA in his address to the participants, highlighted the need for effective implementation of Indian Standards both for Compounded Cattle

Feed as well as Feed ingredients, in order to achieve the desired quality of the feedstuffs.

Dr. R. K. Singh, Ex. Director, Indian Veterinary Research Institute (IVRI), Izatnagar delivered Keynote address.

Ms. Nitasha Doger, Scientist D, Food & Agriculture Department, BIS, delivered presentation on the topic "Indian Standards on Cattle Feed and Feed Ingredients". She briefed on BIS and its core activities in detail. She explained on the Scope of FADC, Standards Formulation Structure and its process, Animal Husbandry, Feeds & Equipment, Sectional Committee FAD5, Indian Standards on Compounded Cattle Feeds, Important Requirements in Indian Standards on Compounded Cattle Feed, IS 2052:2009 Compounded Feeds for Cattle, Ingredients for Compounded Cattle Feed, Indian Standards on Feed Ingredients, Oil Cakes as Feed Ingredients, Grain By-Products as feed Ingredients, Feed Supplements, Requirements in Mineral Supplements, Agro Industries Bye Products as feed ingredients IS 14325, Bypass protein feed for cattle & requirements for bypass protein feed, etc.

Dr. V Sridhar - Senior General Manager - National Dairy Development Board (NDDDB), Nagpur delivered presentation on the topic "New Developments in Indian Standards on Cattle Feed and Feed Ingredients". Dr. V. Sridhar explained in detail on the Dairy Sector in India, challenges to continued growth, efficient feeding management, consequences of imbalanced feeding in early lactation, body condition score (BIS), efficient feeding management, present scenario for reproductive disorders in India, importance of energy in reproduction, importance of protein in reproduction, role of vitamins and minerals, efficient feed management, revised BIS specification, Cattle Feed, Specification of DORB, Cotton Seed.

Shri. Shouvik Chanda, Joint Director, Scientist-D, BIS delivered presentation on the topic "Overview of BIS Conformity Assessment for awareness and implementation of Indian Standards on Cattle Feed and Feed Ingredients". In his presentation he covered BIS Act, BIS

regulations 2018, Conformity Assessment Scheme of BIS, Overview of the Certification Process, Overview of Information to be provided in Application, Product Certification, Process and guidelines, questions answered by products, manual essential features and advantages of BIS certification, essential features and

advantages of bis certification, important development in product certification. BIS certificate on cattle feed and feed ingredients, etc. in detail.

The registration for the Webinar was around 306 Nos & the Webinar was attended by around 256 participants with significant participation from micro and medium-scale industries.



New Zealand based animal-free dairy company Miruku gets funding at seed investment round



Being the highest exporter of dairy, New Zealand has opened new routes for streamlining dairy production. Miruku, a 2020 company developing advanced dairy proteins in plants, has got an investment of \$2.4 million in a seed investment round.

Miruku, through its constant innovation in crop development and dairy ingredients formulation, aims at helping farmers for better sustainable production. Miruku has been actively developing animal-free proteins in its labs and greenhouses through farmers, Corporates, and R and D partnerships. It uses a molecular farming process that uses plant cells to produce proteins, fats, and sugars, which previously were only sourced through animals. This has given dairy industries endless possibilities to develop dairy products like cheese and yogurts.

The investment round included investors such as New Zealand-based Movac, better bites venture, ahimsa foundation, and NZ growth capital partners. The company's goals focus on sustainability and ecology for a better food future.

The team of Miruku consists of CEO Amos Palfreyman, a former dairy executive; Ira Bing, a technology and life science investor; Professor Harjinder

Singh, an expert in milk protein science and technology; and food tech and molecular agronomy professor OdedShoseyov.

Acquisition of SRI Krishna Milks by Dodla Dairy for rs. 50 crore



March 19, 2022, witnessed the acquisition of Karnataka-based Sri Krishna Milks Private Limited by Dodla Dairy Limited. Incorporated in March 1989, Sri Krishna Milks was the first private limited company in Karnataka.

Dodla Dairy Limited executed the business transfer agreement for business acquisition on a "Going Concern" basis and through a "Slump Sale" basis of consideration amounting to Rs. 50 Lakhs. Dodla Dairy Limited, a company incorporated in Hyderabad, Telangana, in 1995, made this stock exchange announcement for diversification of its

business and is ranked as third amongst the third largest among private players in terms of milk procurement per day.

Sri Krishna Milks's business included procuring, manufacturing, distributing and selling milk and other dairy products whose turnover amounted to Rs. 67.27 crore in FY 2020-21, down from Rs 76.27 crore in 2019-20 and Rs 90.20 crore in 2018-19.

The main objective of the acquisition was to expand the company's business overall so that they do not fall in the purview of related party transactions. The business acquisition completion is expected to take two months from the effective date of acquisition.

Amul officially launches milk products in Vijayawada

On 10th March 2022, The Gujarat Cooperative Milk Marketing Federation (GCMMF Ltd) announced the launch of Amul Fresh Milk and Curd in Vijayawada in Andhra Pradesh. One of the benefits procured by the launch is to ensure high-quality products to the consumer at affordable prices and enhance local dairy farmers' profit.

The managing director of GCMMF Ltd, Shri R S Sodhi, on this launch, said, "Amul has become a household name, and all Indians have tasted Amul products in one or the other form. It is a proud



moment for us to source milk from the farmers of Andhra Pradesh and offers this superfood to the people of Vijayawada. We are confident that the people will incorporate Amul Fresh Milk and Curd into their daily diets."

Amul Milk launch in Vijayawada is procured by best breeds of animals from local farmers, thereby promoting dairy farming and ensuring more profits to local farmers. The lunch was a part of the state government initiative to provide and scale healthy, nutritious, and affordable milk.

The milk is available in a range of 500 ml and 1 Litre that will be available in retail shops. An economy pack of 6 Litre is also available for restaurants and hotels.

Montreal based opalia joins the race to produce cultivated milk to address sustainability and animal welfare concerns

Opalia, a Montreal-based startup company, recently announced that it has successfully produced milk using cells without fetal bovine serum

(FBS). The agricultural startup previously known as Bettermilk was co-founded by Jennifer Côté and Lucas House.

Opalia uses functional components of milk to create its cultivated version through mammary cell isolation and proliferation, genetic engineering, mammary gland reproduction, and milk synthesis.

The founders have been diligently working on sustainable dairy farming to help reduce the consequences of dairy farming, which causes environmental degradation, animal suffering, and the spread of pathogens. A pre-seed round of \$1 million funding has already been secured. Also, a seed round is currently being negotiated for continued R&D and projections for scaling costs.

Reports specify that Jennifer Côté also stated that they got into this business for the real sustainability and animal welfare aspect. This is what drives them forward and pushes them to be aggressive in reducing our production costs early to target these lower-margin products that are part of a bigger market.

This year, Opalia successfully proved that the technology can be scaled up, and it is now actively working towards producing a pilot version of it.



Government to launch 'super app' to help farmers

A Ministry of Agriculture and Farmers' Welfare official said the government plans to launch a super app for farmers to consolidate multiple digital entities and mobile applications aimed at them. The app will educate farmers on crop production, technologies, and post-harvest issues, including marketing.

The app will provide information under one roof, and farmers will be able to access information on the latest research and development, weather and market updates, government schemes, and advisories for various agroclimatic zones due to this consolidation.

There are various apps available in the market for helping farmers. The ministry aims at combining apps like KisanSuidha, PusaKrishi, MKisan, ShetkariMasik Android App, Farm-o-Pedia, Crop Insurance Android App, AgriMarket, IffcoKisan, and ICAR's KrishiGyan.

One of the officials also mentioned, "The compilation of different apps under a super app at one place will help the farmers choose from a bouquet of services as per their requirements. The focus will be to aggregate these apps to ease further searching for a relevant app."

It has also come to a notice that Agriculture Minister Narendra Singh Tomar has been in touch with senior officers of the ministry to review the progress of developing the super app. The speculation states that the app can be launched within a few weeks towards mid of April 2022.



Karimnagar dairy crosses the ₹400 crore turnover mark



Domestic dairy has seen an upward trend in the past few years. Dairy producer Karimnagar Milk Producer Company Limited, better known as Karimnagar Dairy, a leading dairy company in Telangana, is expanding to meet increasing demand in the domestic dairy sector.

The current milk processing capacity ranges around two lakh litres per day (LLPD), which is supposed to be increased up to five lakh LPD as a part of the expansion drive. Karimnagar Dairy benchmarked aRs 400-crore annual turnover during the previous year, 10% more than the previous year's turnover.

According to ChelimadaRajeshwar Rao, Chairman of Karimnagar Dairy, the fully automated machinery trial runs at the ₹ 63-crore mega processing plant at Nallagonda in Thimmapurmandal were successfully conducted. Thus, giving a broad scope for expansion plans.

An integrated dairy operation with three lakh litres per day has been completed, and the facility is expected to be inaugurated by Chief Minister K Chandrasekhar Rao soon this year. In addition to chikki (jaggery and peanuts) and one-litre and two-litre curd buckets, Mr Rao stated that the Karimnagar Dairy had recently introduced bread.

Swiss gruyere wins second consecutive world champion cheese title

The world championship cheese contest is hosted by Wisconsin Cheese Makers Association (WCMA). The 2022 World Championship Cheese Contest featured 29 different countries. For the second time in a row, a Gruyere from Switzerland

was named the World Champion Cheese in 2022. The cheese is called as Gourmino Le Gruyère AOP and is made by Michael Spycher of Mountain Dairy Fritzenhaus in Bern, Switzerland for Gourmino AG.

The cheese had a top score of 98.423 out of 100, and it prevailed at the very top after beating almost 2,978 entries in the 2022 World Championship Cheese Contest. Previously, the cheese had earned the world champion title in 2020 and 2008.

An impressive score of 98.331 put Appenzeller Mild-Würzig who was the first runner-up for Appenzeller cheese made by KäseereiNiederbüren AG of Niederbüren, Switzerland. Erzherzog Johann earned the second runner-up position for his mature washed rind/smear-ripened hard cheese. It's made by ObersteirischeMolkereieGen of Knittelfeld, Steiermark, Austria.

John Umhoefer, executive director of Madison, said, "Cheesemakers worldwide have always been deeply committed to excellence in their craft. That commitment is abundantly clear in the work of this year's winners. We congratulate them all on this outstanding achievement."



Editorial Calendar 2022

Publishing Month: January Article Deadline : 30th, Dec. 2021 Advertising Deadline : 3rd, Jan. 2022 Focus : Disease Prevention	Publishing Month: February Article Deadline : 30th, Jan. 2022 Advertising Deadline : 3rd, Feb. 2022 Focus : Herd Management	Publishing Month: March Article Deadline : 28th, Feb. 2022 Advertising Deadline : 3rd, March 2022 Focus : Heat Stress	Publishing Month: April Article Deadline : 30th, March 2022 Advertising Deadline : 3rd, April 2022 Focus : Cold Chain Mgmt.
Publishing Month: May Article Deadline : 30th, April 2022 Advertising Deadline : 3rd, May 2022 Focus : Nutrition	Publishing Month: June Article Deadline : 30th, May 2022 Advertising Deadline : 3rd, June 2022 Focus : Environmental Control	Publishing Month: July Article Deadline : 30th, June 2022 Advertising Deadline : 3rd, July 2022 Focus : Calf & Heifer Mgmt.	Publishing Month: August Article Deadline : 30th, July 2022 Advertising Deadline : 3rd, August 2022 Focus : Processing
Publishing Month: September Article Deadline : 30th, August 2022 Advertising Deadline : 3rd, September 2022 Focus : Milking Practices	Publishing Month: October Article Deadline : 30th, September 2022 Advertising Deadline : 3rd, October 2022 Focus : Feed & Fodder	Publishing Month: November Article Deadline : 30th, October 2022 Advertising Deadline : 3rd, November 2022 Focus : Winter Management	Publishing Month: December Article Deadline : 30th, November 2022 Advertising Deadline : 3rd, December 2022 Focus : Methane Emission

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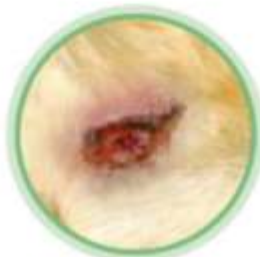
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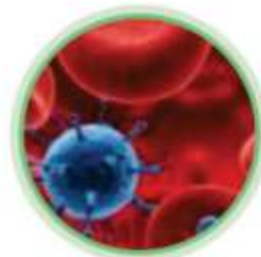
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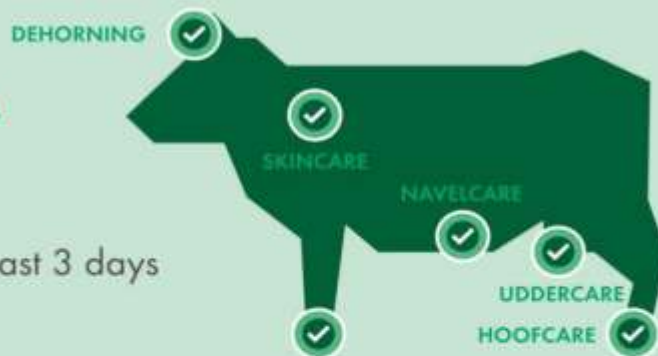
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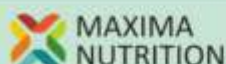
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