October-December 2021 ₹ 30/-

LIVESTOCK FUTURE

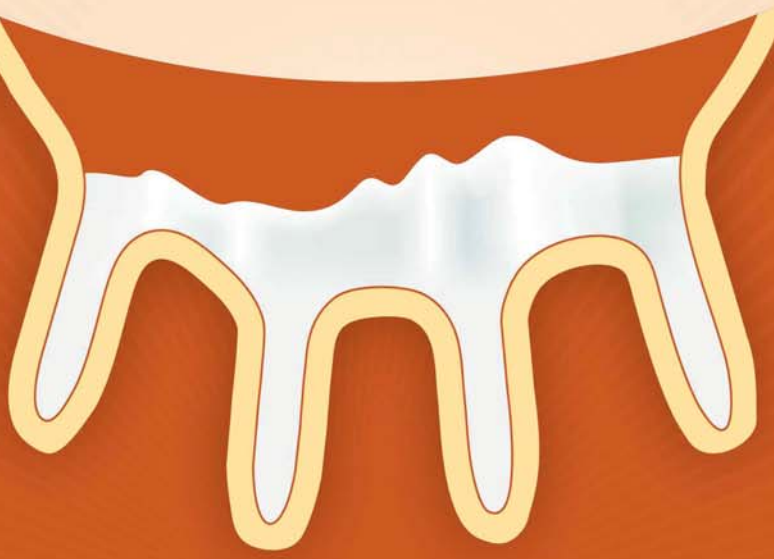
Committed to Animal Health

AYURVET™

TRADITIONAL KNOWLEDGE®
MODERN RESEARCH

An unmatchable solution for mastitis control

AYURVET™



Boost the defense mechanism of udder:

Ist Line of Defense :

Strengthens the teat canal barrier by maintaining integrity of keratin layer by virtue of regenerative and healing properties

IInd Line of Defense :

Enhances cellular defence mechanism and strengthens the udder immunity owing to immunomodulatory activity of ingredient herbs

MASTILEP®

TOPICAL HERBAL GEL FOR CONTROL OF MASTITIS

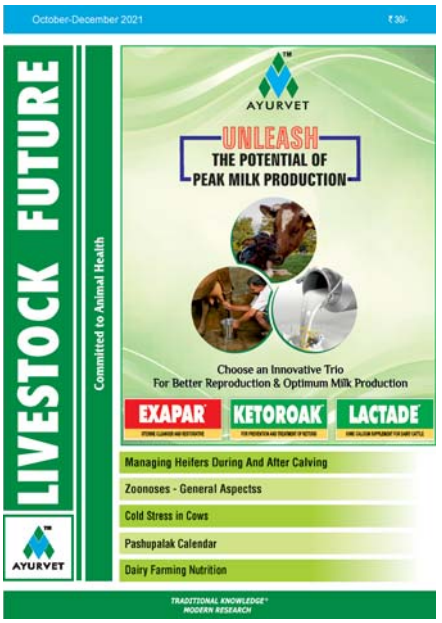
Available in 50g, 125g gel pack and 125ml spray pack

The ideal companion in mastitis therapy

Mastitis Management Cell

1800-123-3734

Mon. - Fri 9am to 6pm



Publisher : M.J. Saxena
Editor: Dr. Anup Kalra
Editorial Board: K. Ravikanth, Dr. Deepak Bhaita, Anand Mehrotra and Joginder Singh Uppal
Zonal Associates : Pankaj Mittal, Dr. Bhaskar Ganguly, B. L. Narayana Sharma, Amrendra Kumar
Layout, Design : Amit Behl
Regd. Office: Ayurvet Limited, 4th Floor, Sagar Plaza Bldg. Laxmi Nagar Distt. Centre, Vikas Marg, Delhi-92
Editorial and Corporate Office: Unit No. 101-103, 1st Floor, KM Trade Tower, Plot No. H-3, Sector-14, Kaushambi, Ghaziabad-201010 (U.P.),
Tel: 91-120-7100201, Fax: 91-120-7100202
E-mail: info@ayurvet.com,
web: www.ayurvet.com
Printed By: M/s.Dewan Offset Printers Pvt. Ltd., WZ-8/5, Industrial Area, Kirti Nagar, New Delhi-110015

Price: 30/- per copy
Annual subscription: 100/-

"Save Water, Save Energy, Reduce GHG Emission"

AYURVET

October-December 2021

LIVESTOCK FUTURE

Vol.12 Issue-4

info@ayurvet.com

CONTENTS

Editorial

Dear Vets,

In a effort to make Animal Husbandry remunerative and attractive to the 10 crore dairy farmers, Cabinet Committee on Economic Affairs(CCEA) chaired by Hon'ble Prime Minister has approved implementation of a special livestock sector package consisting of several activities by revising & realigning various components of Government of India's schemes for next 5 years starting from 2021-22. This package envisages Central Government's support amounting to Rs. 9800 crore over duration of 5 years for leveraging total investment of Rs. 54,618 crore for 5 years.

The department of animal husbandry is now divided in three categories as National Programme for Dairy Development (**NPDD**), National Livestock Mission (**NLM**) and Livestock Census and Integrated Sample Survey (**LC & ISS**), Disease Control Programme is renamed as Livestock Health & Disease Control (**LH & DC**) which includes the present Livestock Health & Disease Control (**LH & DC**) scheme & National Animal Disease Control Program (**NADCP**) & Infrastructure Development Fund. Wherein, the Animal Husbandry Infrastructure Development Fund (**AHIDF**) and the Dairy Infrastructure Development Fund (**DIDF**) are merged and the present scheme for support to Dairy Cooperatives & Farmers Producer Organizations engaged in dairy activities is also included in this third category.

One of the major areas in which the Department of Animal Husbandry and Dairying is focusing on one health which includes mitigation of AMR. Recently the department of Animal Husbandry and Dairying of Govt. of India had organized **"National Programme on AMR Containment"** with the objective to involve all the stakeholders to mitigate AMR. Herbal was identified as one of the solution providers. The department is working to develop a syllabus of herbals for BVSc. & AH. Herbals are known to play an important role towards mitigation of AMR.

This edition of Livestock Future will give you insight about managing dairy related problem like heifer management, zoonoses, managing dry period and winter stress.

Happy Reading!!!

(Dr. Anup Kalra)

Managing Heifers during and after Calving

The calf should normally be born within two hours of the appearance of the water bag. If the calf is not born within three hours of the appearance of the water bag, the heifer should be examined. If there is any doubt about the time of the appearance of the water bag, an examination should be carried out immediately.

The calf should normally be born within two hours of the appearance of the water bag. If the calf is not born within three hours of the appearance of the water bag, the heifer should be examined. If there is any doubt about the time of the appearance of the water bag, an examination should be carried out immediately.

- Heifers must be observed frequently, but disturbed as little as possible.
- Supervising your heifers during calving
- Heifers should be observed at least twice daily, more often if practical. Assistance can then be given early if needed.

To be born alive, the calf must be delivered within approximately four hours after the appearance of the water bag. Early assistance can avoid deaths, calving paralysis and uterine prolapse in heifers.

Heifers should be kept close to cattle yards during calving, so that early assistance may be given if needed. The labour required for supervision can be kept to a minimum if the heifers are joined to calve over a short period (6 to 8 weeks). Keeping the heifers in a small paddock close to the house during calving can also reduce the time required for frequent observation.

Calving difficulty can be induced by disturbance. Hence, frequent checking must disturb the heifers as little as possible. Reasonably quiet cattle may be inspected by slowly riding through the mob on a horse. Binoculars are an option for excitable cattle.

Dr. Kamal Shankar Druve

The decision to give assistance should be based firstly on the position of the calf. If a hind, leg is visible or if only one foreleg is presented, or if there is any other evidence of malpresentation of the calf, assistance should be given immediately. The calf's chance of survival is greater if assistance is given early.

If the position of the calf appears normal, with the head resting on the front legs, then the condition of the heifer should be considered.

A heifer that has ceased straining and appears weak or exhausted should be assisted immediately. If the heifer is straining vigorously, and the birth appears to be progressing normally, the heifer should be left alone for approximately one hour. If there has been no real progress after the hour has elapsed, assistance may be required.

Calling in the vet

A vet should be called if:

- A heifer is found to have difficulty calving
- The birth appears to be breech
- The heifer's condition has become weak.

A vet may be required to correct a difficult calving and to prescribe and administer any veterinary drugs required to assist with calf and heifer survival during and after calving.

Post difficult birth

After a difficult birth, young cows in particular often desert their calves. It is wise to keep the cow and calf confined in a small area after assistance has been given.

They can then be watched and should not be allowed back with the main herd until the cow has accepted the calf and will allow it to suck. Sometimes it may be necessary to hold the cow in a crush or race and force her to allow the calf to drink for the first few days.

Management after calving

Once they have calved successfully young cows are required to produce a good supply of milk and become pregnant again soon after. To achieve this they must be well fed from calving until the end of mating.

Milk production

The main factor determining how well calves grow is the amount of milk their mothers produce. This in turn depends on such things as the age and breed of the cow, but it is also influenced by feeding management.

Young cows produce less milk than mature cows. Consequently the growth rate of calves from two year-old or three-year-old cows is normally 10 to 15% less than that of calves from cows aged five or six.

Nevertheless. young cows can produce good calves if they are well fed after calving. Feed intake before calving has a relatively small influence on milk yield, but after calving the effect is enormous. Once they start to produce

milk, cows of any age need at least twice as much food energy as they did before calving. If they don't get this they will lose weight and their milk production will be depressed.

Fertility of cows after calving

Cows must be well fed after calving. Although maximum fertility requires cows to be gaining weight from calving to the end of mating, it is likely that cows calving in autumn will lose weight from calving to joining, despite being fed. However, adequate fertility will be obtained if cows are calved in condition score 3, to join at condition score 2.5. It is therefore important to ensure that cows calve in good enough condition to allow for weight loss and yet still ensure adequate condition for joining.

After they calve, cows have only about 80 days in which to become pregnant if they are to calve again within 12 months. Whether they achieve this level of fertility depends on how soon after calving they come on heat again. This is largely determined by the breed of cow, the amount of milk produced, age, and feeding management before and after calving.

Milk production places cows of any age under much greater stress than pregnancy or any other body function. High milk-producing breeds and strains of cattle take longer to start cycling again after calving than lower milk producers.

Mature cows usually take about 60 days to come on heat again after calving; young cows may take 90 days or more. The reason is that young cows, particularly those calving at two years of age, are in a very delicate nutritional situation after calving. They require nutrients not only for milk production, but also for their own body growth and development. In contrast to this, the mature cow can, to some extent at least, 'milk off her own back'.

Nutritional management both before and after calving has a great impact on cow fertility. Cows that are not well-fed during pregnancy take longer to start cycling again after calving than cows that are well fed. Ideally cows should calve in medium body condition, preferably in condition score 2.5 to 3.0.

Feeding young cows after calving

For good fertility and milk production, first calvers in particular must be well fed after calving.

Simply providing an abundance of good quality pasture may be adequate in some years. Some producers draft off freshly calved young cows each week, and drift them into a better paddock. In an autumn-calving herd, for example, this could be an 'autumn-saved' paddock.

In most districts of Victoria, however, young cows calving in autumn usually require a high-quality supplement after calving. Early or mid-season cut clover hay, early cut oaten hay and lucerne hay are suitable, but hay of lower quality is of little use. If good quality hay is not available, cereal grains or pellets may have to be fed.

Feeding should begin immediately after calving because cattle may take a while to adjust to the ration.

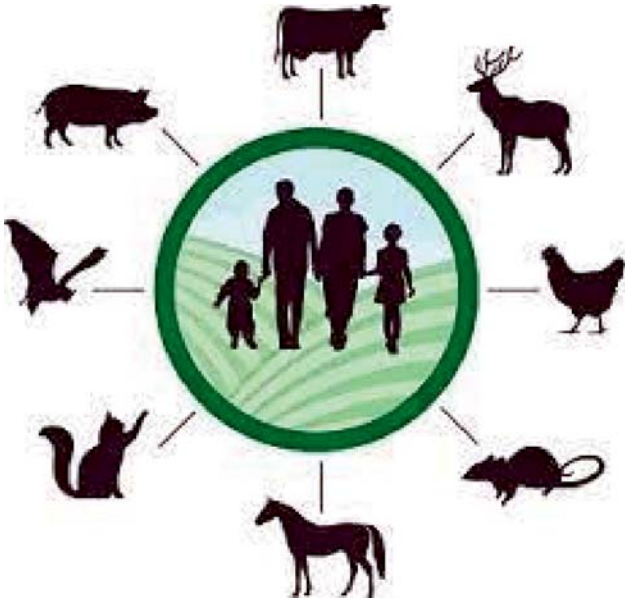
□□

VAS (MP)

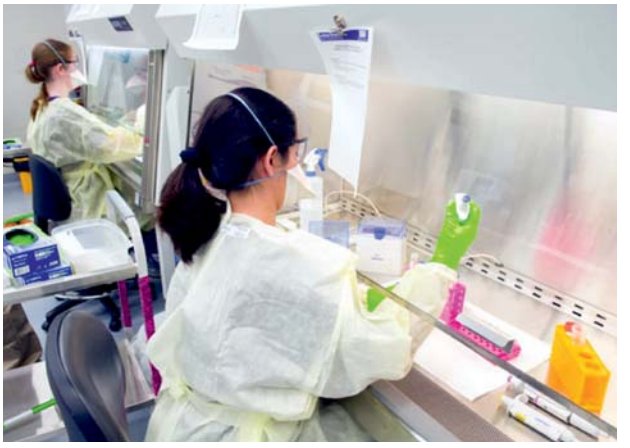
Zoonoses
General Aspects

Historically, zoonotic diseases had a tremendous impact on the evolution of man, especially those cultures and societies that domesticated and bred animals for food and clothing. Zoonoses are among the most frequent and dreaded risk to which humankind is exposed. Zoonoses occur throughout the world transcending the natural boundaries. Their important effect on global economy and health is well known, extending from the international movement of animals and importation of diseases to bans on importation of all animal products and restrictions on other international trade practices. So, zoonoses no longer are solely a national problem. For effective control of zoonoses global surveillance is necessary.

The word 'Zoonosis' (Pleural: Zoonoses) was introduced by Rudolf Virchow in 1880 to include collectively the diseases shared in nature by man and animals. Later WHO in 1959 defined that Zoonoses are "those diseases and infections which are naturally transmitted between vertebrate animals and man". Zoonoses include only those infections where there is either a proof or a strong circumstantial evidence for transmission between animals and man.



Dr. Arvind Sharma



Zoonoses-An International Problem

Historically, zoonotic diseases had a tremendous impact on the evolution of man, especially those cultures and societies that domesticated and bred animals for food and clothing. Zoonoses are among the most frequent and dreaded risk to which humankind is exposed.

Zoonoses occur throughout the world transcending the natural boundaries. Their important effect on global economy and health is well known, extending from the international movement of animals and importation of diseases to bans on importation of all animal products and restrictions on other international trade practices. So, zoonoses no longer are solely a national problem. For effective control of zoonoses global

surveillance is necessary.

With recognition of inter-relationships between countries, the internationalization of control efforts have become more relevant to technical, economic and social fields. The control of zoonoses retains its prominent place among the actions of international agencies according to the health and economic problems specific to each region.

Zoonoses- An Emerging Problem

Over the last two decades, there has been considerable change in the importance of certain zoonotic diseases in many parts of the world, resulting from ecological changes such as urbanization, industrialization and diminishing proportion of persons working in the so-called primary sector.

We do not know with what challenge nature will confront us in the world of constant interference with ecology. Most of the infections of man that have been discovered in the last twenty years are shared with lower animals and a number of other diseases previously thought to be limited to man have now been found to be zoonoses. Reference may be made to various types of encephalitis, eosinophilic meningitis, capillariasis, anisakiasis, lyme disease, monkey pox diseases in humans, lassa fever, Marburg disease and Ebola for all of which an animal link has been established.

Among those zoonoses recognized today as particularly important are anthrax, plague, brucellosis, Bovine tuberculosis, leptospirosis, salmonellosis, spotted fever caused by Rickettsiae, rabies, several common athropod borne viral infections (arboviral infection), certain parasitic diseases, especially cysticercosis, hydatid disease, trypanosomiasis and toxoplasmosis.

Classfication

With the advanced laboratory techniques and increased awareness among medical and veterinary scientists, ecologist and biologists, more than 300 zoonoses of diverse etiology are now recognised. Thus, a very large number of zoonoses calls for classification especially for easy understanding. These are classified as follows:

According to the etiological agents

Bacterial zoonoses e.g. Anthrax, brucellosis, plague, leptospirosis, salmonellosis, lyme disease

Viral zoonoses e.g. Rabies, arbovirus infections, KFD, yellow fever, influenza, CCHF

Rickettsial zoonoses e.g. murine typhus, tick typhus, scrub typhus, Q-fever

Protozoal zoonoses e.g. Toxoplasmosis, trypanosomiasis, leishmaniasis

Helminthic zoonoses e.g. echinococcosis (hydatid disease), taeniasis, schistosomiasis, dracunculiasis

Fungal zoonoses e.g.deep mycosis-histoplasmosis, cryptococcosis, superficial dermatophytes.

Ectoparasites e.g. scabies, myiasis

According to the mode of transmission

1. Direct zoonoses

These are transmitted from an infected vertebrate host to a susceptible host (man) by direct contact, by contact with a fomite or by a mechanical vector. The agent itself undergoes little or no propagative or developmental changes during transmission, e.g. rabies, anthrax, brucellosis, leptospirosis, toxoplasmosis.

2. Cyclozoonoses

These require more than one vertebrate host species, but no invertebrate host for the completion of the life cycle of the agent, e.g. echinococcosis, taeniasis.

3. Metazoonoses

These are transmitted biologically by invertebrate vectors, in which the agent multiplies and/or develops and there is always an extrinsic incubation (prepatent) period before transmission to another vertebrate host e.g., plague, arbovirus infections, schistosomiasis, leishmaniasis.

4. Saprozoonoses

These require a vertebrate host and a non-animal developmental site like soil, plant material, pigeon dropping etc. for the development of the infectious agent e.g. aspergillosis, coccidioidomycosis, cryptococosis, histoplasmosis, zygomycosis.

According to the reservoir host

1.Anthropozoonoses

Infections transmitted to man from lower vertebrate animals e.g. rabies, leptospirosis, plague, arboviral infections, brucellosis and Q-fever.

2. Zooanthroponoses

Infections transmitted from man to lower vertebrate animals e.g. streptococci, staphylococci, diphtheria, enterobacteriaceae, human tuberculosis in cattle and parrots.

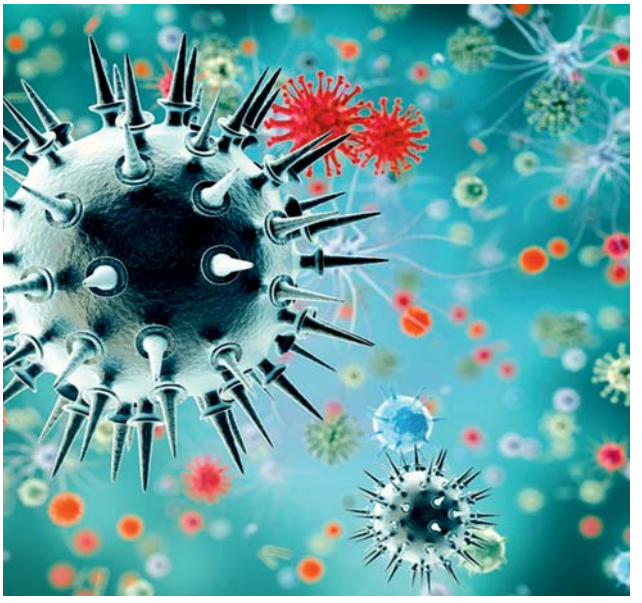
3. Amphixenoses

Infections maintained in both man and lower vertebrate animals and transmitted in either direction e.g. salmonellosis, staphylococcosis

Factors Influencing Prevalence Of Zoonoses

1. Ecological changes in man's environment

With the expansion of human population, man is forced to exploit the virgin territories and natural resources like harnessing the power of rivers, constructing roads and pipelines through virgin



or thinly populated areas, clearing, irrigating and cultivating new land, deforestation. All this would lead to entering of humans in the unaccustomed ecosystem in which potential pathogens form part of the biotic community (natural focus).

Large scale expansion of agricultural and engineering resources, construction of dams, artificial lakes, irrigation schemes, clearing of forests -all these lead to changing of the biting habits of the blood sucking vectors and alteration in the population of reservoir animals which has led to the spread of leptospira, tuleraemia, helminthic infections etc.

2. Handling animal by-products and wastes (occupational hazards)

There is significantly higher attack rates in workers during the course of their occupation than the rest of the population, e.g. anthrax in carpet weavers, live stock raisers and workers with animal hair in the textile industry, leptospirosis in rice field workers, listeriosis in agricultural workers, erysipeloid in butchers and fish merchants, tularemia and trypanosomiasis in hunters, creeping eruptions in plumbers, trench diggers etc. Other examples of zoonoses as occupational hazards are Q-fever in abattoir and rendering plant workers, jungle yellow fever and tick borne diseases in wood cutters, salmonellosis in food processors, bovine tuberculosis in farmersetc.

3. Increased movements of man

Land development, engineering project work, pilgrimages, tourism, etc. expose the people to contaminated food and water leading to diseases like amoebiasis, colibacilliosis, giardiasis, salmonellosis, shigellosis, etc.

4. Increased trade in animal products

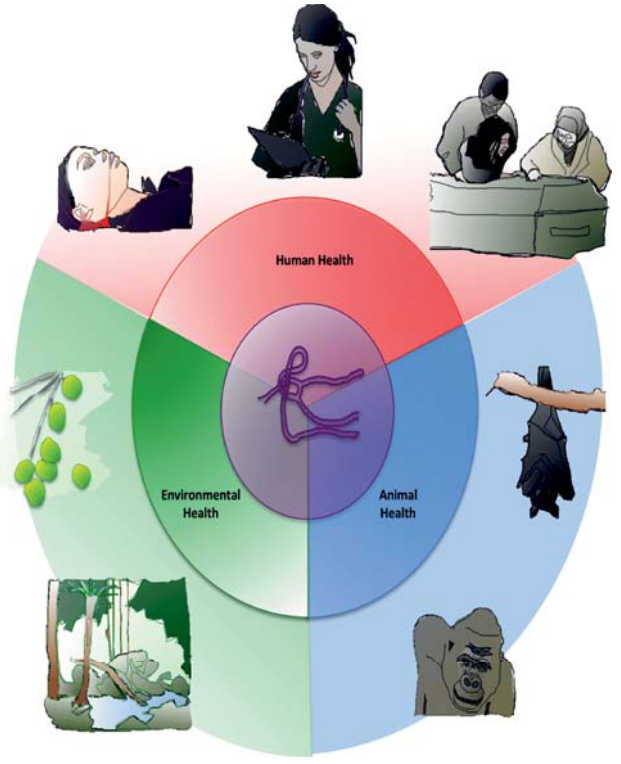
Countries which import hides, wool, bone meal, meat, etc. from an area where some of the zoonoses are endemic, are likely to introduce the disease into their territories, e.g. salmonellosis, foot and mouth disease, anthrax, Newcastle disease etc.

5. Increased density of animal population

Animals may carry potential risk of increased frequency of zoonotic agents in man e.g. dermatophytosis, tuberculosis, brucellosis etc.

6. Transportation of virus infected mosquitoes

Aircraft, ship, train, motor and other vehicles bring the viruses in to a new area, e.g. yellow fever Chikungunya fever, dengue fever etc.



7. Cultural anthropological norms

In Kenya, people allow the dogs and hyenas to eat human dead bodies infected with hydatidosis. This helps to perpetuate the transmission cycle of the disease.

Zoonoses As A Public Health Problem

Although poorly documented, zoonotic diseases are a major public health problem in India. Plague has killed nearly 120 lakhs people since 1898. Rabies continues to be a serious health problem in the country. Approximately 20,000 deaths due to rabies are estimated to occur every year while more than 17 lakhs persons bitten by suspected rabid animals seek antirabies vaccination at rabies treatment centres. Typhus killed many people during World War-I. Brucellosis alone is estimated to cause annual loss of approximately 300 lakhs man days in addition to an annual economic loss of Rs.2400 lakhs through brucellosis in cattle and buffaloes. Japanese encephalitis is another emerging

zoonotic disease in India causing several outbreaks and considerable morbidity and mortality. Studies on reservoir of this disease are yet in conclusive, Kala-azar although proved zoonotic all over the world, continues to be non zoonotic in India in spite of the epidemiological evidence suggesting it to be zoonotic. Cutaneous leishmanias is which was hither to consider an anthroponosis in India has been proved to be a zoonosis recently with the Indian desert gerbil Merriones hurriane as the animal reservoir.

It is not surprising, that in India, where approximately 80% of population lives-in rural areas in close contact with large domestic animal population (5120 lakhs approximately, 7290 lakhs poultry and equally large populations of wild and semi-wild animals) abundance of vectors because of suitable climate, low socio-economic conditions and lack of proper medical care, zoonotic diseases assume great public health significance.

However, because of inadequate diagnostic facilities, unfamiliarity of physicians with these diseases and lack of co-ordination between physicians, veterinarians, and epidemiologist, the extent of their existence is obscured.

□□

VAS M.P.

Winter Stress in Cows

Cold Stress. It happens almost every year in many locations. Maintaining top performance of cattle during very cold or inclement winter weather conditions is a challenge, If feed intakes aren't maintained or increased during such time and cold stress isn't managed or reduced, performance may suffer greatly. In this article, a few thoughts are presented which may be helpful in either improving or, more realistically, maintaining good feed intake and performance during cold weather. Cold stress in cattle is a problem mainly faced by cattle breeders who keep their cattle on pastures. However, it can also occur in free stall barns with curtain walls. It is mostly conditioned by factors affecting barn microclimate: temperature, relative humidity, and air velocity.

When temperatures start to decline in winter, particularly as we get closer to 0°C (or 32°F), it is time to think about what effect this is having on cow productivity and efficiency.

Like all mammals, cows are warm blooded and need to maintain a constant core body temperature. Normal rectal temperature for a cow is around 38°C (101°F).

Within a range of environmental temperatures called the "thermoneutral zone," animals do not have to expend any extra energy to maintain their body temperature. At the lower end of this range, normal metabolic processes supply enough heat to maintain body core temperature. Within their thermoneutral zone, animals may modify their behaviour, such as seeking shelter from wind, and respond over the long term by growing a thick hair coat for winter, without affecting their nutrient requirements. However, below the lower limit of the thermoneutral zone, in the "lower critical temperature," the animal experiences cold stress. To combat cold stress, the animal must increase its metabolic rate to supply more body heat. This increases dietary requirements, particularly for energy. Typical lower critical temperatures for beef cattle are affected by a number of factors. Table 1, below, shows the impact that different hair coat types can have on lower critical temperature.

Table 1. Lower Critical temperatures for Beef Cattle, Assuming No Wind Chill

Dr. Sunil Bishnoi

Coat Description	Lower Critical Temperature	
	°F	°C
Summer coat or wet coat	59	15
Fall coat	45	7
Winter coat	32	0
Heavy winter coat	18	-8

Table 1. Lower Critical Temperatures for Beef Cattle, Assuming No Wind Chill

Cattle, like humans, actually experience the "effective temperature," which takes into account both air temperature and the effect of wind chill. Cool or cold wind passing over an animal draws heat away from it much more quickly than still air at the same temperature. Wind chill effects for cattle are shown in Table 2, below. These figures assume a dry, clean hair coat. If the animal is wet and/or dirty, consider the data to be an underestimation of the effect of the wind.

Table 2. Wind Chill Effects for Cattle with Winter Coats (values are effective environmental temperatures)1 2

Wind Speed (kph)	Air Temperature (degrees Celsius)								
	-18	-15	-12	-9	-7	-4	-1	+2	+4
0	-18	-15	-12	-9	-7	-4	-1	+2	+4
8	-21	-18	-16	-13	-11	-8	-5	-2	+1
16	-24	-21	-18	-16	-13	-11	-8	-5	-2
24	-26	-23	-21	-18	-16	-13	-10	-7	-4
32	-29	-26	-23	-21	-18	-16	-13	-10	-7

1 Assumes that hair coat is dry and clean.

2 For example, when air temperature is –18°C and wind speed is 24 kph, the effective temperature experienced by the animal is the equivalent of a still air temperature of –26°C.

If cows are exposed to wind or drafts, it is important to adjust for the effective temperature and take the appropriate steps to ensure that the cows can maintain body temperature and weight.

Factors Affecting an Animal's Ability to Withstand the Cold

- **Acclimation:** Cattle do adjust or acclimate to colder weather by growing a longer, thicker coat. This provides additional insulation against cold weather. The coat must be clean and dry to provide maximum protection to the cow. Dirt or moisture on the coat reduces its insulation value dramatically.
- **Fat Layer:** Cattle in good condition with a thick fat layer are better able to withstand the cold than thin cattle. The fat layer acts as another insulating layer between the animal's core and the environment.
- **Metabolic Rate:** Cows will also increase their metabolic rate to increase heat production and help maintain body temperature. This increases the need for dietary energy, so appetite is usually increased and cows eat more.

The Effects of Severe Cold Stress on Cattle

Hypothermia occurs when the body temperature drops well below normal. In general terms, with

cattle, mild hypothermia occurs with a body temperature of 30°C–32°C, (86°F–89°F), moderate hypothermia at 22°F–29°C, (71°F–85°F) and severe hypothermia below 20°C (68°F). As rectal temperature drops below 28°C (82°F), cows are not able to return to normal temperature without assistance through warming and the administration of warm fluids. As hypothermia progresses, metabolic and physiological processes slow down, and blood is diverted from the extremities to protect the vital organs. Teats, ears and testes are prone to frostbite. In extremes, respiration and heart rate drop, animals lose consciousness and die.

In most situations, a more insidious and costly problem occurs. Cows are subjected to an environmental temperature below the lower critical temperature, but without obvious signs of hypothermia. This increases the maintenance energy requirement of these animals as they adjust to the conditions and divert more energy to maintaining body temperature. There are two potential responses to this situation.

1. Cows have access to higher quality feed and/or increased intake, and therefore maintain their body weight.

Cows try to increase feed intake in an effort to meet their energy requirements. Given the opportunity and gut capacity, cows will eat more feed to help meet their increased energy demands. Practically, it is usually expedient to feed grain as well. This increases feed costs, increasing the cost of keeping cows, however the expectation is that cows will maintain their body weight!

It is generally accepted that for every 1°C drop below the lower critical temperature, there is an approximately 2% increase in energy requirements. The amounts of additional feed required for a cow under cold stress can be calculated, but as a rule of thumb, a cow with a dry winter coat should be fed the additional feed as presented in Table 3, below.

Table 3. Effective Temperature and the Additional Feed Required to Meet the cow's Energy Requirements

Effective Temperature (°C)	Extra Energy Required (%)	Extra Hay or Grain Required	
		extra hay (kg/cow/day)	extra grain[1] (kg/cow/day)
-1	0%	0	0
-12	20%	1.6-1.8	0.9-1.0
-23	40%	3.2-3.6	1.8-2.3

Table 3. Effective Temperature and the additional Feed required to Meet the Cow's Energy Requirements1Cows may not be able to eat the amount of extra hay required to maintain their body weight and may have to be fed the indicated amount of grain instead of additional hay to meet their energy requirements.

2. Cows don't have increased feed quality and intake and lose body weight.

If cows are not fed additional feed or the quality does not allow them to eat enough to meet their additional energy requirements, body mass will be "burned" to produce metabolic heat. These cows lose weight as both feed energy and stored fat are diverted to maintain body temperature and vital functions. Cows in this situation that start to lose weight soon enter a downward spiral — the more weight (fat) they lose, the less insulation they have, the more susceptible they are to further cold stress, and they lose weight even faster.

Cows, and especially heifers that lose weight, calve in poor condition. The consequences are increased calving difficulties, an increase in the number of lighter, weak calves and higher calf mortality. These dams produce a reduced amount of colostrum (of lower quality) and have lower milk production, increased neonatal mortality and reduced growth rate in surviving calves. These cows usually have delayed return to estrus, longer days open and poorer reproductive success.

Key management factors to limit the effects of cold stress

- Monitor the weather. Monitor temperature and increase feeding in response to cold weather. Cows in the last trimester require additional grain feeding during periods when the effective temperature falls below the lower critical level.

- Protect animals from the wind. Wind markedly reduces the effective temperature, increasing cold stress on animals.
- Bed cows well. Providing adequate dry bedding makes a significant difference in the ability of cattle to withstand cold stress.
- Keep cows clean and dry. Wet coats have greatly reduced insulating properties and make cows more susceptible to cold stress. Mud-caked coats also reduce the insulating properties of the hair.
- Provide additional feed. Feed more hay and grain. If wet feeds are fed, make sure they are not frozen.
- Provide water. Make sure cows have ample water available at all times. Limiting water will limit feed intake and make it more difficult for cows to meet their energy requirements. Frozen troughs and excessively cold water seriously limit water intake.

We can't control the weather but we can do everything reasonably possible to reduce the effects of cold on cows. This will help reduce costs and improve production efficiency.

□□

VAS, Haryana

Pashupalak Calendar

Cold waves are seasonal with more episodes observed from November to March with each of these extreme events mostly experienced during the middle 3-month period. However, the minimum temperatures drop below 8°C over many parts of northern India during the months of November to February (December and January are the coldest months) over northern India with normal Tmin less than 8°C over its many parts.

January

- Heavy snowfall in Kashmir and Himachal Pradesh during this month results in cold breeze and frost in northern India. It is imperative that all necessary steps be taken to protect livestock from this inclement weather.
- In case of the occurrence of frost, make adequate arrangements for artificial lighting and heating.
- Weak and sick animals should be covered with sack cloth to protect them from the cold. At the same time, during the night, all the animals should be tethered in a covered shelter.
- Avoid keeping animals in a damp area, as well as protect them from smoke from fires which are lit to provide warmth. The dampness and smoke increases their chances of contracting pneumonia.

- Animals should be given lukewarm feed and water to drink.
- To maintain the body temperature of animals in milk, they should be fed with a mixture of oil cakes and jaggery.
- It is important to start collecting and storing fodder at this time.
- To ensure that essential salts are maintained in the animals, provide salt mixtures in adequate quantities along with their feed.
- This is the right time to deworm the animals.
- To protect the animals from ecto-parasites, their sheds should be kept clean. Bouquets of Nirgundi (Vitex negundo), Basil (Ocimum sanctum) or Lemon Grass (Cymbopogon

Dr. Mankesh Mishra

citrates) should be hung in the animal sheds, the smell of which keeps ecto-parasites away. To keep the sheds clean, a Neem oil based

disinfectant can be sprayed.

- If the animals have not yet been vaccinated against FMD, PPR, Haemorrhagic Septicaemia, Enterotoxemia, Black Quarter etc, ensure that this is done now. Lambs and kids in particular should be given the vaccination to prevent Enterotoxemia.
- Irrigation of fodder crops of Alfalfa (Medicago sativa, also called Lucerne) and Berseem Clover (Trifolium alexandrinum) should be carried out every 20 – 30 days and for the oat crop every 20 – 22 days.

February

- During this month there is rainfall in a number of places. Adequate measures should be taken to protect the animals from the wet weather, as well as the drop in temperature when the skies clear after the rain.
- All suggestions provided during the last month for protection of the animals against cold and inclement weather may be practiced this month too.
- The controlled breeding programme for animals should continue in the month of February so that all participating animals become pregnant during this month.
- · All new-born animals should be dewormed.
- · Lambs/kids should be vaccinated against PPR.
- To prevent Mastitis in dairy cattle, they should be milked completely.
- Fodder crops of Alfalfa and Berseem Clover as we ll as Oats should be irrigated every 12 – 14 and 18– 20 days respectively.
- Berseem Clover and Alfalfa should be dried and stored as dry fodder or converted into silage for use during times of low or no green fodder availability.

March

- In this month care needs to be taken to prevent diseases caused by hot weather.
- If mosquitos, flies, ticks etc. are increasing, due care needs to be taken to prevent spread of diseases caused by them.
- Animals are prone to sterility and Johne's disease during this time. They should be provided immediate treatment for these.
- If there is a decrease in milk production, the milk and urine of the animal must be sent for testing by a veterinarian.
- Fodder crops of Alfalfa and Berseem Clover

as well as Oats should be irrigated every 10 and 12 –14 days respectively.

- In the summer season, Maize, Bajra and Jowar should be sown for use as green fodder.

- Perennial fodder grasses such as Hybrid Napier and Guinea grass may be transplanted into prepared fields.
- Preparation of silage from available green fodder should be carried out.
- To prevent Puerperal Fever in Pregnant animals, 50–60 grams of mineral mixture should be fed to them every day to boost their immunity.

April

- This month is characterised by high temperatures, the resultant effects of which on animals is dehydration, a decrease in body salts and appetite, a drop in production etc. It is, therefore, imperative to protect the animals from these high temperatures.
- Draught animals should be allowed to rest in a shaded and airy spot during the afternoon till about four 'o clock in the evening.
- Due attention should be given to arrangements for provision of water to animals. The drinking troughs should be kept clean and animals should be provided water at least four times during the day.
- Some male animals get agitated due to the heat, effects of which are more visible during the night time. Livestock rearers should be cognizant and take care of this.
- Look for signs of Mastitis in dairy cattle and treat for it immediately.
- Lambs should be vaccinated against Enterotoxemia and Sheep Pox.
- Pregnant animals (more than 6 months) should be given additional feed.
- During this month the availability of fodder in the pastures is less and general animal nutrition remains low till the onset of monsoons. At such a time, there is a decrease in body salts, especially phosphorus, which results in a disease called 'Pica' (depraved appetite) in animals. It is, therefore, essential to mix salt solution in the mineral blocks fed to the animals.
- Through community effort, ensure that carcasses of dead animals are not discarded on the regular grazing routes of the animals.
- Such areas should be cordoned off so that the remains of dead animals are not ingested by

the live animals, which can result in Botulism which is untreatable and results in the death of the animal.

- Maize, Bajra and Jowar sown as fodder crops may be harvested after 45-50 days.

May

- Temperatures are high during this month and

some areas experience severs dust storms accompanied by thunder showers.

- Heat related diseases in animals that can be seen to affect animals during this time are fever, dehydration, decrease in body salts, loss of appetite and decrease in productivity.
- Animals should be protected from the heat and strong, hot and dry summer afternoon winds (loo).
- Adequate efforts should be made for fodder collection/purchase and storage for periods of shortage.
- To avoid loss of essential body salts in animals ensure that a salt mixture in appropriate quantity is mixed with the feed and water and given to animals.
- Depending upon the season, the content of the animal feedshould be changed. At this time increase the quantity of wheat chaff and Jowar in the feed.
- Give dairy animals a balanced feed so that their milk production capacity is enhanced.
- Deworming of animals should be carried out.
- Maize, perennial grasses and other fodder species should be harvested now.
- Sheep should be sheared during this month.

June

- Temperatures are high during this month and some areas experience severs dust storms accompanied by thunder showers.
- Heat related diseases in animals that can be seen to affect animals during this time are fever, dehydration, decrease in body salts, loss of appetite and decrease in productivity.
- Animals should be protected from the heat and strong, hot and dry summer afternoon winds (loo).
- Adequate efforts should be made for fodder collection/purchase and storage for periods of shortage.
- To avoid loss of essential body salts in animals ensure that a salt mixture in appropriate quantity is mixed with the feed and water and given to animals.
- Depending upon the season, the content of the animal feed should be changed. At this time increase the quantity of wheat chaff and Jowar in the feed.
- Give dairy animals a balanced feed so that their milk production capacity is enhanced.
- Deworming of animals should be carried out.
- Maize, perennial grasses and other fodder species should be harvested now.
- Sheep should be sheared during this month.

July

- The month of July witnesses the onset of the monsoon season and in some areas there are dust storms accompanied with rain. At such

times the animals should be protected against illness caused due to the heat and damp weather.

- Make adequate arrangements to protect the animals from slush and floods.
- Protect the animals from diseases caused due

to excessive rainy conditions and remember to de-worm them at this time.

- If the animals have not yet been vaccinated against FMD, Haemorrhagic Septicaemia, Black Quarter, Enterotoxemia etc., this must be done at this time. Adult sheep and goat must be vaccinated against Enterotoxemia.
- After the birth of the calf/kid/lamb, the new born must be fed with colostrum within the first two hours.
- Animals in milk are susceptible to getting 'Milk Fever' 7-8 days after giving birth. To protect the animal from this disease, they should get adequate exposure to sunlight during pregnancy. Also, in the last month of pregnancy, the animal should be given injections of Vitamin E and Selenium, to protect them from problems which may occur at the time of giving birth such as placenta not falling out. Alternatively, 5 – 10 grams of lime or 70-100 ml of a mixture of calcium and phosphorus can be given to the animals daily.
- Do not let animals graze in irrigated fodder fields, since after the long summer, the sudden growth in the fodder due to the onset of monsoons, leads to the presence of poisonous cyanide in it. This is especially so in the Jowar crop. These fodder crops should, therefore, not be harvested before time or fed to animals.
- Perennial fodder grasses should be transplanted at this time and shall be ready for cutting in 40 – 50 days. For a balanced animal feed, maize, Jowar and bajra should be sown along with cluster beans and black-eyed peas.
- 21 days after shearing sheep, their bodies should be drenched with disinfectant.

August

- Make appropriate arrangements to protect animals from exposure to sun and excessive heat.
- Vaccinate the animals against FMD, Haemorrhagic Septicaemia, Black Quarter, Enterotoxemia etc., if not already done so.
- Animals afflicted by FMD should be kept in a separate enclosure so that they do not infect the healthy ones. If FMD is prevalent in the area, do not let your animals come in contact with the infected ones.
- Calves should not be allowed to drink milk from mothers afflicted by FMD, as this can affect their hearts and lead to death.

- The mouth, hooves and udders of diseased animals must be cleaned with a 1% solution of Potassium Permanganate.
- If symptoms of Haemorrhagic Septicaemia or Black Quarter are seen in animals, contact the veterinarian immediately.
- Carcasses of dead animals must be removed from grazing areas to prevent the spread of Botulism.
- Goat and sheep are prone to getting PPR, Sheep/Goat Pox and Enterotoxemia, at this time. Vaccinate them against these diseases.
- Animals must be dewormed, using the correct dose of medicines, after due consultation from the veterinarian / animal health worker.
- To protect animals from ecto-parasites,

contact the veterinarian / animal health worker for the appropriate medicine. Keep the shed/area where animals are kept, clean. Bouquets of Nirgundi, Basil or Lemon grass may be hung up in the animal shed, the scent of which keeps the ecto-parasites away. Alternatively, a lemon oil based disinfectant may also be used to keep the sheds clean.

- Ensure that the animal sheds remain dry during the monsoon season. To keep flies away spray Nilgiri or Lemon grass oil in the shed.

- Give the animals 30–50 grams of mineral mixture along with their feed on a daily basis. This increases milk productivity and enhances the animal's immunity.

September

- A good monsoon leads to flooding in animal sheds and the occurrence of moisture-borne diseases, hence, make adequate arrangements for water drainage and keeping the sheds dry.
- As much as possible, keep the animals in dry and high (raised platform) places.
- Ensure that fodder storage areas are kept dry.
- Due care should be taken to keep grazing pastures clean. The floor and walls of sheds should be cleaned and coated with lime solution.
- Protect the animals from the rise and fall of temperatures.
- To protect the in-milk animals from contracting Milk Fever, follow the directions given in the month of July.
- Protect the animals from parasites. Lambs should be vaccinated against Enterotoxemia.
- Cows should be mated within 12 – 18 hours of their coming on heat.
- A lot of green fodder is available at this time, hence, to protect animals from problems associated with excess grazing, restrict the

time that they spend in pastures. Mix essential salts in the feed of the animals.

- Prepare silage from the abundantly available green fodder. Also green fodder can be mixed with dry grasses and fed to the animals.
- Cutting of sown perennial grasses should be done regularly. The field should be treated with required fertilisers, manure and

compost, from time to time.

- Sowing of Berseem (Trifolium alexandrinum) and Alfalfa should start in the last week of this month.
- Sheep should be sheared during this month.

October

- There is a change in the weather from this month onwards, hence, due arrangements should be made to protect the animals from the onset of the winter.
- If sheep have not yet been sheared, this activity must be carried out during this month.
- The affected areas of animals afflicted with FMD should be cleaned with a 1% solution of Potassium Permanganate.
- If the animals have not yet been vaccinated against FMD, Haemorrhagic Septicaemia, Black Quarter, Enterotoxemia etc., this must be done during this month.
- Deworming must be carried out during this month. Dewormers and anti-parasitical solutions must be changed over a period of time to counter build-up of resistance.
- Due care should be taken to store/procure fodder for periods of shortage that may occur during the winter months in certain areas.
- Essential salts must be mixed with feed and given to the animals.
- Despite the fact that green fodder is abundantly available, ensure that the fodder given to animals is mixed with larger quantities of dry fodder at this time. This is due to the fact that an increase in consumption of green fodder can lead to occurrence of green diarrhoea and a problem of Acidosis (increased acidity in the blood).
- Sowing of improved varieties of Berseem (B.L.10, B.L.22, Vardan, J.H.B.146, B.L. 42) must be done in this month.
- 21 days after the sheep have been sheared, their bodies should be drenched with disinfectants to protect them against ecto-parasites.

November

- To protect animals from a sudden drop in temperature, keep the animals in a covered

shed/area during the night.

- The bedding/hay in the animal sheds must be kept dry and changed/aired every day.
- If the animals have not yet been vaccinated against FMD, Haemorrhagic Septicaemia, Black Quarter, Enterotoxemia etc., this must

be done during this month.

- Take adequate care to prevent occurrence of Mastitis in animals.
- Anti-parasitical medicines and solutions administered not only protect the animals from diseases, but they also help in better assimilation of the feed that is given to the animals, thereby increasing their productivity.
- Essential salts/mineral mixture in appropriate quantities must be mixed with feed and given to the animals.
- Due care should be taken to store/procure fodder for periods of shortage that may occur during the winter months in certain areas.

- Perennial grasses must be cut at this time. These go into hibernation during the winter months and will only be available for harvesting in the months of February – March.
- To get the maximum benefit from Oat crops, improved varieties (Sirsa Oat 6, Sisra Oat 9, J.H.O.822, and J.H.O.851) may be sown from the middle of this month.
- Sowing of Berseem and Alfalfa must be completed by the middle of this month.
- Goat and Sheep must be vaccinated against PPR once every three years.
- 21 days after the sheep have been sheared; their bodies should be drenched with disinfectants to protect them against ecto-parasites.

December

- To protect animals from a sudden drop in

temperature, keep the animals in a covered shed/area during the night.

- If the animals have not yet been vaccinated against FMD, Haemorrhagic Septicaemia, Black Quarter, Enterotoxemia etc., this must be done during this month.
- Essential salts/mineral mixture in appropriate quantities must be mixed with feed and given to the animals.
- To protect in-milk animals from Mastitis, all their milk should be removed and after milking, their udders should be cleaned with a disinfectant.
- The quantity of green fodder must be kept in limited quantities in the animal feed, as it increases the chances of occurrence of diarrhoea and Acidosis in the animals.
- If there are adequate quantities of green fodder still available after feeding the animals, this must be dried in the sun and stored for periods of shortage.
- 50-55 days after sowing of Berseem and 55-60 days of Oats, these can be harvested. Henceforth, Berseem can be harvested every 25-30 days.
- Lopping of leaves of fodder trees should be carried out during this month. These leaves should be dried in the shade and stored for feeding animals during periods of fodder shortage.

□□

VAS, Punjab

Dairy Farming Nutrition

The range of topics covered within the nutrition section reflect the variety of management systems across Northern Ireland dairy farms. Within some systems grassland management will be a critical component. In high yielding herds issues such as dry cow management and concentrate feeding will be of greater importance.

Dry cow management

The period of time from drying-off through the dry period, pre-calving period, and calving is a time of transition. The management, nutrition, and health practices implemented during the transition period the cow's lactation cycle will have profound effects on her productivity and profitability in the next lactation.

Transition cow management

The transition period is from when the cow is dried off to the calving period. Poor transition cow management can result in significant economic losses to the dairy farm business. Problems that can arise from poor management include udder oedema, milk fever, retained placenta (cleansings), displaced abomasum (stomach), laminitis (lameness), metritis (uterus infections), ketosis and fatty liver syndrome which all result in losses in profitability. Poor management may also result in increased calf mortality through difficult calvings and weak calves.

Successful dry cow management requires the farmer being able to recognise which disorders the dry cows are prone to, how to prevent them, and when necessary, how the farmer and veterinarian may treat them.

The dry period

Restoring body energy and nutrient reserves (body condition score), is more efficient if accomplished during late lactation rather than during the dry period. The dry period is necessary to allow the mammary gland to go through a normal period of repair and development and to ensure that the mammary cell numbers continue to multiply normally during early lactation. A short or absent dry period greatly reduces the number of secretory cells in the mammary gland and reduces milk lactation yields. Research has shown that cows

Dr. Aman Preet Kour

dry for 60 days give approximately 125 KGs more milk the following lactation, compared to cows dry fewer than 40 days, which produce around 250 KGs less milk the following lactation.

Two considerations must be taken into account when deciding to dry off a cow:

- The gains that can be achieved in production and profits from extending the current lactation
- Losses in production and profit in the following lactation resulting from fewer days dry.

When should the cow be dried off?

This will usually depend on the cow's production and condition score, which may result in a dry period longer or shorter than 60 days. The production at which to dry off a cow generally is defined as the daily milk yield at which the return from milk sales is equal to the labour cost for milking plus the cost of additional feed above maintenance and pregnancy levels.

Several projects undertaken at ARINI/ Hillsborough advise cows in their second or later lactations to be dried off for a minimum of six weeks. With regard to first lactation heifers, which continue to grow during the first lactation, an eight week dry period is advisable. This policy is being adopted with the cows and heifers in the herds at Greenmount Campus however, animals which are in particularly poor condition at drying off, (condition score <2.5, thin) are allowed an additional two weeks of a dry period, to allow them to gain body condition.

Drying-Off

If milk yield is above 10 litres approaching the drying off stage (seven weeks before calving), removal or reduction of the amount of feed offered is a useful tool to reduce the quantity of milk produced. Ideally, concentrate should be eliminated about one week before the dry-off day, which should reduce the cow's milk production. Cows should not be milked partially (once a day) for several days as a means to dry off, because partial milking increases the incidence of mastitis flare-ups.

Immediately after the last milking disinfect all four teat ends with alcohol, then treat each teat individually with a dry-treatment antibiotic of suitable treatment length for the expected calving date and finally treat with a post-milking teat dip. In addition, animals should be observed daily for a week or until the mammary gland has begun to recess and is not secreting milk.

The mammary gland is very susceptible to new infection at this point in time. If animals are dried off during the indoor housing period, a clean and well-bedded environment is essential to help reduce the chance of udder infection. Indeed research has indicated that dairy cows are vulnerable to environmental mastitis in early

lactation. This is the result of bacteria, which are inhabitants of the environment which multiply away from the cow's udder for example, in dung and bedding. The dairy cow's udder comes into contact with bacteria in the house and out doors during the dry period and consequently the udder becomes susceptible to infection, which may result in the dairy cow taking environmental mastitis shortly after calving.

Medication

Some vaccinations, parasite controls, vitamin-mineral boluses, and hoof trimming procedures should be performed during this main portion of the dry period. One advantage of using parasite controls during the dry period, is milk containing antibiotics cannot be milk into the milk tank since the cow is not milking. Cows at the drying off period at Greenmount Campus are treated with a mineral/vitamin bolus, a Rotavirus vaccine and they are dosed with a fluke drench. In addition, a routine examination of the cow's feet is undertaken and any paring necessary and or treatments necessary applied.

Vaccination

Vaccines given at drying off offer several advantages:

- Vaccination is done at a period of low stress and when milk production will not be affected
- Vaccination at drying off should produce protective antibodies for calving time and early lactation
- Vaccination during the dry period results in protective antibodies in colostrum for passive protection of the calf. Vaccine boosters for calf protection should be given three weeks prior to calving for maximum colostral antibodies.

Vaccines for dry period

Respiratory viruses

- Infectious Bovine Rhinotracheitis vaccine (IBR) used for prevention of respiratory diseases and abortion in cows
- Bovine Viral Diarrhoea and Mucosal Disease vaccine (BVD and MD)–Prevention of diarrhoea and abortion in cows.

Scour virus

- Rotavirus-provides colostral protection for calf, use in calf with scour problems.

Body condition score

In the dairy cow, body condition score is an indication of the amount of stored energy reserves held by the cow. Body condition score changes with stage of lactation. Fresh cows in peak lactation tend to be in a negative energy balance and therefore lose body condition. The ideal body condition score depends on stage of lactation.

One of the most critical points at the drying off period is the condition score of the dairy cow. Body condition is a method of evaluating fatness or thinness in cows according to a five-point scale, a scale of 0 denotes a very thin cow while 5 denotes an excessively fat cow. Condition score

3, is the most desirable for the cow at drying off and calving (Refer to Table 1).

Overconditioning, or fatness, (greater than condition score 3.5), may cause the dry cow to have difficulty at calving, be more susceptible to metabolic disorders and infections. Overconditioning usually begins during the last three to four months of lactation, when milk production has decreased, but concentrate and total nutrient intake have not been reduced accordingly. Another cause of overconditioning is prolonged dry periods or overfeeding during the dry period.

Table(1) Body condition score and description

Condition score	Description
Greater than 3.5(>3.5)	Fat
2.5 to 3.0	Fat
Less than 2.5 (<2.5)	Thin

In contrast, undercondition, or thinness (less than condition 2.5), in the dry cow can frequently lower milk production, reduce the persistancy of the cow's lactation and reduce protein content because of insufficient energy and protein reserves especially if the lactation diet is poor. Thin cows often do not show heat or concieve until they start to regain – or at least maintain body weight.

Altering body condition score of the dry cow

Ideally cows should be dried off in condition score 3 and maintained at this condition score until calving. Grouping and separate diets for dry cows is critical, but facilities are often lacking for separate feeding groups. In an ideal farm situation, cows at drying off should be grouped as fat, average or thin. Cows which are fat, should be offered a restricted food intake, this can be achieved by offering the animals straw or restricting their silage intake or grass intake. In contrast, cows which are thin should be offered high quality silage/grass plus a small amount of concentrate to gain body condition score. Remember, condition score of the dairy cow can be controlled by food and energy intake.

Dry Period Nutrition

Did you know that:

- 60 to 65 percent of the calf growth is in the last 60 days of gestation (before calf is born).
- The protein requirements of the developing calf increases in the last 60 days of gestation. Consequently, this is reason why dry cows are offered a protein concentrate containing a high DUP content.
- Even though body condition doesn't change, the cow should gain weight (as the calf grows inside of the cow)
- Dry matter intake(DMI) tends to decrease during the latter part of the dry period due to increase in the calf size on reduction in rumen size.
- Due to this change in DMI, the diet nutrient density must be adjusted in the last 2 weeks to maintain nutrient intake. If this is not done, then actual quantities of nutrient intake will be decreased.
- Expected daily dry matter intakes –
- Early dry period = 1.9 to 2.1 percent of body weight

Close up dry period (last two to three weeks) = 1.6 to 1.8 percent of bodyweight.

There is a relationship between precalving and postcalving dry matter intake. Cows with poor intake precalving tend to have lower intakes postcalving. □□

Practitioner-J&K

Management during the Dry Period

Previous studies have shown that decreased dry matter intake (DMI) and increased non-esterified fatty acids (NEFA) negatively affect fertility and subsequent milk production. The traditional dry period decreases DMI prior to parturition, resulting in a decrease in energy intake. A negative energy balance increases NEFA concentration, and increased NEFA may impair the immune system, especially by decreasing neutrophil function prior to parturition. Earlier studies have shown that post-partum health disorders, including retained placenta and metritis, were correlated with periparturient neutrophil function. In addition, decreased DMI is also linked to a reduced body condition score (BCS) in dairy cows. These events in the periparturient period negatively affect fertility.

This is a time when the body condition of the cows should dictate the amount/quantity of feed or energy being fed. Ideally cows should have a condition score of 3. It is important to feed bulky forage to keep the rumen expanded and working. As already mentioned, if cows are to fat or thin their energy or food intake in the diet should be altered to allow them to gain or maintain body condition score.

Transition diet during the last four weeks of the dry period

During the last four weeks of the dry period, many changes are needed in the nutrition and management of the dry cow. It is important that the rumen bugs and rumen papillae in these cows

are adapted to the feedstuffs being fed to milking cows.

Much of the early dry cow's diet has consisted of forage. However as the cow approaches calving the cow's dry matter intake declines. Therefore, diet nutrient density needs to be increased due to the lower DMI. Supplementation during this stage is required to meet the dry cow's energy needs due to the rapidly growing calf. Usually dairy cows in the Greenmount Campus herd are offered 1 – 2kg of a precalver feed containing 250 to 300 g digestible undegradable protein (DUP) freshweight/day. Sources of DUP include protected soya,or prairie meal.

At this stage of the gestation cycle, the developing calf has a large nutrient demand for protein,for this reason cows are offered a high

Dr. Sangita

protein concentrate daily."

Transition feeding-one week before calving

At Greenmount Campus, cows calving during the housing period are moved to a straw bedded court 5 – 7 days before calving. During this stage, dairy cows are fed the same concentrates and forages as the milking cows. This offers the opportunity to adapt the cow's rumen to the higher levels of concentrate feeding after calving by introducing up to 2 KGs of concentrate before calving. Feeding the same diet before calving that is fed after calving aids the rumen adaptation and transition after calving and helps to reduce the stress of calving.

Summary

In a good dairy management programme, dry cows must receive the same level of care as the milk producing cows. At drying off, good hygienic husbandry to required to prevent the incidence of mastitis. Ideally cows should have a condition score of 3 at drying off. However, condition score gain or loss can be controlled by food or energy intake. Forages containing a high fibre content should be fed in the diet to keep the rumen expanded and working. In the last two weeks before calving, the cow's dry matter intake declines, therefore it is important to supplement the cow's diet with a concentrate to ensure the cow's nutrient intake is maintained. Cows should be offered the same diet (silage and concentrate)

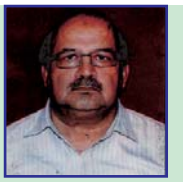
as the cows in the milking herd, to allow the rumen bugs and papillae to adapt to the change of diet whenever the dairy cow calves down and commences lactation.

The main objective of the dairy farmer is to produce milk from the cow as profitability as possible. Management of the dairy cow is an important aspect of the cow's lactation, which has a major impact on the health, efficiency and profitability of the dairy cow.

□□

Practioner–Mizoram

Expert's Advice



Dr. P.K. Srivastava
Senior Veterinarian

Q. What is Hydroponics technology and what are its benefits?

Mahesh Khanna, Hisar

Ans. Hydroponics is the science of soilless growing of plants in nutrient rich solutions with very little water. It is a technique where the physiological requirements of plants can be met without use of soil or natural sunlight. Hydroponics techniques have proven it to be very useful and efficient for producing food for livestock. The food that is available is free from undesirable materials such as weeds, insects, dust, insecticides, germicides, carcinogens.

Q. How to detect the mastitis immediately at field level? Shobhit Sinha, Lucknow

Ans. Abnormalities of the milk (presence of blood, flakes & pus) & abnormalities in the udder (hot painful swelling with inflammation). Many like Ayurvet's Mastrip, of the company's marketing mastitis detecting strips, this strip can be used to detect the mastitis. When the strip is introduced into the milk the colour of the strip changes.

Q. Does feeding of sugarcane tops cause infertility problems in cattle?

Mayank Sinha, Baroda.

Ans. When the sugarcane tops are fed along with other roughages and not as sole ration for longer periods, practically infertility problem is not encountered in cattle.

Q. What should we do to increase milk production in animals?

Shiksha Saxena, Surat

Ans. Animals should be feed green fodder such as berseem, Lucerne; Maize + Cowpea around the year. By feeding quality green fodder instead of concentrates, milk can be produced at cheaper cost. Thus due consideration should be given to cultivation of green fodder in the crop rotation scheme.

Q. How udder infections could be prevented? Shefali Sehgal, Amritsar

Ans. Teat sphincters are open for approximately 30 minutes after milking; hence animal should not be allowed to lie down to avoid contamination. They could be given feed after milking so that they would stand during this period.

Q. What are the different green fodders that can be cultivated for Livestock?

Ritu Sharma, Bareilly

Ans. Cereal fodder: Fodder –Co-27, C0-10, Fodder maize, Fodder Bajra (Co-8), Napier+Bajra-C01,Co2,Co3,Co4 Guinea, Hamil, Cenchrus species, Setaria, Sudan grass, Green Panic, para grass, Karnal grass etc., Legume fodder: Cow pea (Co5), Desmanthus, Stylo species, Ceratro, Lucerne, sunhemp, Clitoria, Calapogonium etc.

Q. How to reduce wastage of the feed and fodder? Sheshank Gupta, Pune

Ans. Possible way of reducing the feed wastage is by providing the feed in the form of pellets or crumbles. In case of mash feeding, sprinkle little bit of water before feeding to reduce the wastage. The wastage of fodder could be reduced by judicial provision of fodder by providing it at a height (particularly for goats) so that the animal could grab it. Chaffing the fodder will also reduce the fodder wastage.

□□

AYURVET

SKILL INDIA

Agriculture & Livestock - Key to Rural Economy

OUR KEY TRAINING AREAS

- Dairy Farming
- Artificial Insemination Technician
- Vermicomposting
- Biogas Operation
- Organic Farming
- Cultivation of Medicinal Plants
- Hydroponics Technology
- Fish Farming

Agriculture and livestock are two arms of farmers which are important for driving the rural economy. To double the farm income, sustainable integeration of agriculture and livestock along with skill and knowledge would play a important role.

Let us join hands to build skilled India for improving the livelihood and rural prosperity.

Contact Us

Corporate Office: Unit 101-103, First Floor, KM Trade Tower, Plot No. H-3, Sector 14, Kaushambi, Ghaziabad, U.P. 201010 Ph: 0120 -7100201, Email: consumercare@ayurvet.com

Regd. Office: Ayurvet Limited, 4th Floor, Sagar Plaza Bldg. Laxmi Nagar Distt. Centre, Vikas Marg, Delhi-92

AYURVET™

IS NOW

Feed Safety

GMP+

Assurance

Certified

Part of a network of over 18,000 companies, in more than 80 countries

Thank you all for your valuable support

AYURVET™ **AYURVET LIMITED**

Corporate Office : Unit No.101-103, 1st Floor, KM Tower, Plot No. H-3, Sector-14, Kaushambi, Ghaziabad-201010 (U.P.) •Tel.: +91-120-7100201 • Fax: +91-120-7100202 • e-mail: customercare@ayurvet.com • website: www.ayurvet.com • CIN No. U74899DL1992PLC050587

Regd. Office: 4th Floor, Sagar Plaza, Distt. Centre, Laxmi Nagar, Vikas Marg, Delhi-110092, India

TRADITIONAL KNOWLEDGE® MODERN RESEARCH