

LIVESTOCK FUTURE

Committed to Animal Health



World Egg Day

A1 And A2 Milk – Its Impact on Human Health

Father of Surgery - Shalihotra

Feeding Strategies for Ameliorating Negative Energy Balance

King of bitter-Kalmegh – Multi-use Herb for Livestock Health



An unmatched solution
for mastitis control



● **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

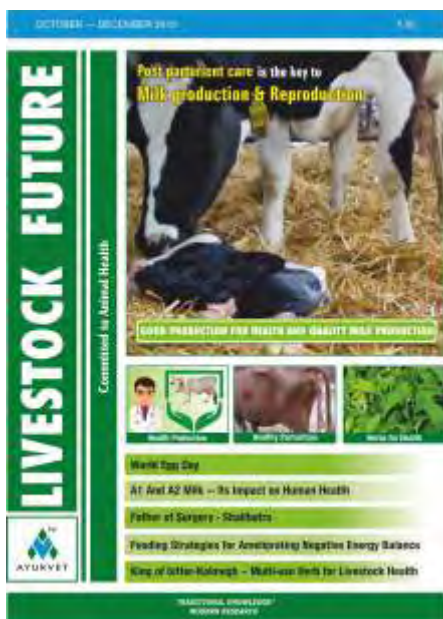
The ideal companion in mastitis therapy



Mastitis Management Cell

1800-123-3734

Mon. - Fri 9am to 6pm



Publisher : Rajesh Palaniappan

Editor: Dr. Anup Kalra

Editorial Board: K. Ravikanth, Dr. Praful Verma and Anand Mehrotra

Zonal Associates : Pankaj Mittal, Dr. Bhaskar Ganguly, B. L. Narayana Sharma, Amrendra Kumar

Layout, Design : Amit Behl

Cover Design: Pradeep Wadhvani

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

Views expressed by individuals and contributors in the magazine are their own and not necessarily represent the view of **LIVESTOCK FUTURE** and it does not accept any responsibility of any direct, indirect or consequential damage caused to any party due to view expressed by any or more person in the trade. All disputes are to be referred to Delhi Jurisdiction only.

Price: 30/- per copy

Annual subscription: 100/-

“Save Water, Save Energy, Reduce GHG Emission”



AYURVET

October-December 2019

LIVESTOCK FUTURE

Vol.10

Issue-4

info@ayurvet.com

CONTENTS

| | |
|---|-----------|
| Editorial | 2 |
| • Exploring the next Milky Way to growth | 5 |
| • Goat Farming in India Towards the New Horizons | 9 |
| • World Egg Day | 16 |
| • A1 AND A2 Milk-Its Impact on Human Health | 17 |
| • Father of Surgery-Shalihotra | 22 |
| • Cattle Age Determination | 24 |
| • News and view | 27 |
| • Feeding Strategies for Ameliorating Negative Energy Balance | 31 |
| • King of bitter-Kalmegh- Multi-use Herb in Livestock Health | 37 |
| Experts advise | 29 |



Dear Vets,

Wish you all a very Happy Diwali!

India is the largest milk producing and consuming country in the world. Eighty percent (80%) of small and medium cattle herders who keep 2-3 animals that make the country self-sufficient in milk production, get employment from the milk business, but after the proposed Regional Comprehensive Economic Partnership (RCEP) free trade agreement, foreign milk and its products could be imported. This may put small milk producers in danger. Experts are of such opinion that this will not be good for the cattle ranchers, and the dairy sector. Niti Aayog's Working Group Report (Feb 2018) on Demand and Supply Projections towards 2033 for Crops, Livestock, Fisheries and Agricultural Inputs, states that the demand for milk was 292 Million MTs against which India will produce 330 MMT milk. Thus, India will be surplus in milk products, and therefore, the question of imports does not arise. NDDB and even international organizations like FAO and IFCN have also expressed similar projections. Although it was agreed to import only 5% of the total export of milk value added products into India, but experts say that it would impact 28% of the Indian market.

Currently, the government controls imports by imposing import tax on milk or its products, which will not be possible after the signing of the agreement. We have been hearing from our elders since childhood that milk is a treasure of health. Of course this is also completely true, but recently there has been many cases of milk adulteration in the media. Although, farmers are not be blamed for the same. Mich animals give only clean and nutritious milk. The same clean milk is sent forward by the herders. The adulteration happens by some selfish elements. Today, we all need to stop this together. As the cattle rearing has given the country the first place in milk production, produce quality milk in the same way, so that we can export that milk to other countries when needed.

Thank you for your support to Livestock Future

(Anup Kalra)

Exploring the next Milky Way to growth

Indian dairies should go in for industrial-scale production of traditional milk products for selling in both domestic and export markets

Millions of stars, each not big enough to count individually, define our galaxy, aptly named the Milky Way. The half-litre poly pack of milk that millions in India open every day is, similarly, the output of innumerable dairy farmers and their bovines. The unique system of some 47.5 million litres of daily milk collection from over 16 million producers for processing and sale by our dairy cooperatives—which even some private dairies have gone on to adopt—is a Milky Way that India has successfully demonstrated to the world. It has also enabled the country become the world’s largest milk producer at 176.3 million



tonnes in 2017-18 and a per capita availability of 375 grams per day, three time more than what it was till the late 1970s.

Against this backdrop, it is surprising to see the Indian dairy industry today seeking more to guard its elevated status than aiming for the stars. What stops it



from becoming the global leader in dairy product markets? Why should Amul, a national pride and respected global brand, express insecurity in the face of imagined competition? It is true that the European Union and the US convert their milk surpluses into mounds of powder and butter oil, creating distortions in global trade and artificially depressing prices. Also, huge quantities are dumped under the garb of humanitarian aid. In a scenario where global markets are manipulated and the countries responsible follow protectionist policies back home, a direct exposure of our farmers to international competition can be both risky and unfair.

But India should consider itself lucky not being a “price taker” like New Zealand, which has only the export market and where it is at the mercy of “price-makers”, viz. the US and EU. The sheer size of our domestic market — which will only increase with rising incomes and high elasticity of demand for milk and milk products — should ensure that we aren’t relegated to being a “price-taker”. There is no likelihood, nor should the government contemplate, of allowing easy/concessional tariff access to foreign dairy products under the Regional Comprehensive Economic Partnership or any other bilateral or

Tarun Shridhar, Sharad Gupta



multilateral agreement.

However, that should not make the Indian dairy industry complacent. It should, indeed, look at capturing global markets, rather than being concerned about the mere possibility of others' dairy products entering our markets.

To start with, the focus should shift from quantity to quality. It is a fact that we cannot now boast of excellence in quality of our products: One could call it unfair, but they do not meet the sanitary and phytosanitary standards required for exporting to developed markets. Secondly, just as Italy gave the world pizzas, why cannot we offer something that is different and new? The launch pad for navigating the next Milky Way, in fact, actually exists within the country — in the form of traditional dairy products.

Dairy India had, in 2015, estimated the Indian market for milk and dairy products — in terms of the value paid by consumers — at Rs 5,26,403.6 crore or \$ 81 billion. The biggest component of it was liquid milk, at Rs 3,03,983.6 crore or 58%. The second largest segment, at Rs 81,000 crore, was desiccated/coagulated products such as khoa, chhanna and paneer that are used as base material for a variety of indigenous sweets and preparations. This was followed by other products (mostly comprising traditional sweets, at Rs 72,000 crore), followed by ghee (Rs 40,200 crore) and curd/yoghurt/ lassi/chhach (Rs 12,420 crore). On the other hand, the value of milk powders (Rs 13,000 crore), table butter (Rs 2,450 crore) and cheese/edible casein (Rs 1,350 crore) was way below that of indigenous products.

Organised dairies have, no doubt, made considerable inroads into liquid milk marketing. Almost a third of the milk Indian consumers currently purchase is in branded pouches; that will only increase with the neighbourhood dudhia fading into oblivion. Dairies

have also grabbed a significant share of the market—to the extent these are not made at home—for curd and ghee. But they have left the most profitable segment of indigenous milk sweets and preparations to the unorganised sector, which thrives on low capital base, generally disregards food standards and cares little for good manufacturing practices.

The major strength of traditional dairy products lies in their mass appeal. The market as well as operating margins for these far exceeds that of butter, cheese, powder, whiteners and other western dairy products. Their industrial-scale production presents a unique opportunity to organised dairies. In this age of globalisation, projecting ethnic foods and culture beyond their narrow regional confines makes good business strategy. There is enormous scope to influence even overseas consumer behaviour through exotic product offerings.

The Indian dairy industry can increasingly explore the use of modern processing techniques for producing traditional milk products — whether continuous khoa-making machines or homogenisation to improve their texture. Candy-processing equipment could, likewise, work well for making burfis and pedas, just as tofu manufacturing lines simulating production of paneer. Even imported food processing machinery, with some modifications, can be used to produce gulabjamun and rasgulla. Lassi, it is known, is good for digestion and also induces sleep, which has to do with an amino acid



called tryptophan that is converted in the body to serotonin, given as medication for insomnia. In a



world full of tensions, anything that can help one to sleep and makes for a great nightcap drink is a blessing. What we need are smart marketing gurus to sell these sweet dreams globally.

Horlicks made a great business of putting over two-third of malt solids in milk and selling it at the same price as milk solids. Our halwais have done better. They add 30-40% sugar to khoa and channa that already contain 30-50% water and sell these at prices

higher than milk solids. No wonder, they make more money than any organised dairy. Globally, the value added to milk through product manufacture and marketing is at least twice the price paid to the dairy farmer. This applies even more in the case of halwais. While western dairy products (with the exception of malted milk and chocolates) add about 50% value to milk, the traditional Indian dairy products add 200%. The message is loud and clear: The fusion of technological processes and products, blending the best of ethnic and modern foods, and a cross-cultural approach to product development is the way forward. The possibilities for them are endless in the wake of expanding globalisation. Our dairies should view the world as their marketplace and turn to ethnic foods for even creating a new class of products with exotic appeal. How about a gulabjamun soufflé or a kulfi mousse for dessert?

Shri Shridhar is former Secretary of Ministry of Fisheries, Animal Husbandry & Dairying, Government of India; Shri Gupta is Editor-Publisher, Dairy India Yearbook



RUCHAMAX[®]

Appetite Stimulant & Digestive Tonic

Enhance digestion & Milk Production

process, to enhance fibre digestion, manipulating desirous changes in VFAs which in turn improves the efficiency of animal for better milk production.

Reduce Methane Production

Scientific studies have proved that Ruchamax acts as natural methane inhibitor, which causes reduction in methane production and results into the efficient utilisation of nutrients in the ruminants.

Features and Benefits

- Boosts number and activity of microflora
- Helps to maintain ruminal pH
- Restores normal ruminal movement
- Increases salivary secretions

Dosage & Administration

- Cow, Buffalo & Horse : 15g
 - Calf, Heifer & Colt : 5-7.5g
 - Sheep, Goat & Pig : 3-5g
- Orally twice daily for 3-5 days

Pack and Presentation



15g



300g



1kg

Post parturient care is the key to Milk production & Reproduction



Presenting

EXAPAR
UTERINE CLEANSER AND RESTORATIVE

KETOROAK
FOR PREVENTION AND TREATMENT OF KETOSIS

LACTADE
IONIC CALCIUM SUPPLEMENT FOR DAIRY CATTLE

Goat Farming in India

Towards the New Horizons



Goat farming is the raising and breeding of domestic goats (*Capra hircus*). It is branch of animal husbandry. Goats are raised principally for their meat, milk, fibre and skin. It can be very suited to production with other livestock such as sheep and cattle on low-quality grazing land. Goats efficiently convert sub-quality grazing matter that is less desirable for other livestock into quality lean meat. Furthermore, goats can be farmed with a relatively small area of pasture and limited resources.

Anamika*, Brishketu Kumar and T.K. Rao

Goats are among the main meat-producing animals in India. Whose meat (chevon) is one of the choicest meats and has huge domestic demand. Due to its good economic prospects, goat rearing under intensive and semi-intensive system for commercial production has been gaining momentum for the past couple of years. High demand for goat and its products with potential of good economic returns have been deriving many progressive farmers, businessmen, professionals, ex-servicemen and educated youths to take up the goat enterprise on a commercial scale. The emerging favourable market conditions and easy accessibility to improved goat technologies are also catching the attention of entrepreneurs. A number of commercial goat farms have been established in different regions of the country.

Why Goat Farming

Goat is a multi functional animal and plays a significant role in the economy and nutrition of landless, small and marginal farmers in the country. Goat rearing is an enterprise which has been practiced by a large section of population in rural areas. Goats can efficiently survive on available shrubs and trees in adverse harsh environment in low fertility lands where no other crop can be grown.

In pastoral and agricultural subsistence societies in India, goats are kept as source of additional income and as an insurance against disaster. Goats are also used in ceremonial festings and for the payment of social dues.

Better shelter

- **Construct shed on dry and properly raised ground.**
- **Avoid water-logging; marshy areas.**
- **In low lying and heavy rainfall areas the floors should be preferably elevated.**
- **In temperate Himalayan region the floor may be made of wood.**
- **The shed should be 10 ft. high and should have good ventilation.**
- **Bucks should be housed in individual pens.**
- **Does can be housed in groups up to 60 per pen.**
- **Provide proper shade and cool drinking water in summer.**
- **Dispose of dung and urine properly.**
- **Give adequate space for the animals.**
- **Avoid over stocking or crowding.**

In addition to this, goat has religious and ritualistic importance in many societies. The advantages of goat rearing are:

- The initial investment needed for goat farming is low.
- Due to small body size and docile nature, housing requirements and management problems with goats are less.
- Goats are friendly animals and enjoy being with the people.
- Goats are prolific breeders and achieve sexual maturity at the age of 10-12 months gestation period in goats is short and at the age of 16-17 months it starts giving milk. Twinning is very common and triplets and quadruplets are rare.
- In drought prone areas risk of goat farming is very much less as compared to other livestock species.
- Unlike large animals in commercial farm

conditions both male and female goats have equal value.

- Goats are ideal for mixed species grazing. The animal can thrive well on wide variety of thorny bushes, weeds crop residues, agricultural by-products unsuitable for human consumption.
- Under proper management, goats can improve and maintain grazing land and reduce bush encroachment (biological control) without causing harm to the environment.
- No religious taboo against goat slaughter and consumption prevalent in the country.
- Slaughter and dressing operation and meat disposal can be carried without much environmental problems.
- The goat meat is more lean (low cholesterol) and relatively good for people who prefer low



months for maximum productivity.

- Cull the old animals at the age of 6 years and above.
- Avoid the kidding during peak periods of summer and winter.
- It should be planned to obtain 3 kidding in 2 years period by adopting optimal management conditions.
- For every 25 does one buck should be provided in one breeding season.
- Breed the animals 12 hours after the onset of the first symptoms of heat for maximum conception.
- Unreadable animals must be examined thoroughly as directed by veterinary doctor for prompt elimination of causes for anoestrus or cull them if necessary.
- In advanced stage of pregnancy the does must be transferred to either kidding pens or separately earmarked space for kidding within the main shed after thoroughly disinfecting it.
- After kidding, the does should be provided with warm barn mash for two days.

Feeding

- Ensure bushes/shrubs for browsing of animals. As an alternative to above, supply of cultivated fodder from own farm or from surrounding farms may be ensured. Offer roughages adlib. As a thumb rule 2/3rds of the energy requirements should be met through roughages. Half of the roughages should be



leguminous green fodders and rest half should be grasses/tender tree leaves.

- In the absence of good quality green fodders, concentrates must be considered to replace them. Kids should be fed colostrums up to 5 days of age. Later on they can put on Kid starter rations.
- Green leguminous fodders should be offered adlib. To kids from 15 days onwards. Provide salt and water to kids at all times. Additional concentrates should be given to bucks and does during breeding season. Care should be taken to meet the nutrient requirements as recommended.

Health care

- Be on the alert for signs of illness such as reduced feed intake, fever, abnormal discharge or unusual behavior.
- Consult the nearest veterinary aid centre for help if illness is suspected.
- Protect the animals against common diseases.
- In case of outbreak of contagious diseases, immediately segregate the sick animals from healthy one and take necessary disease control measures.
- Deworm the animals regularly.
- Examine the faces of adult animals to detect

energy diet especially in summer and sometimes goat meat (chevon) is preferred over mutton because of its "chewability"

- Goat milk is easy to digest than cow milk because of small fat globules and is naturally homogenized. Goat milk is said to play a role in improving appetite and digestive efficiency. Goat milk is non allergic as compared to cow milk and it has anti-fungal and anti bacterial properties and can be used for treating urogenital diseases of fungal origin.
- Goats are 2.5 times more economical than sheep on free range grazing under semi arid conditions.
- Goats create employment to the rural poor besides effectively utilizing unpaid family labour.
- There is ample scope for establishing cottage industries based on goat meat and milk products and value addition to skin and fiber.

Goat Management

Modern and well established scientific principles, practices and skills should be used to obtain maximum economic benefits from goat rearing. Some of the recommended practices are given here under:

Better shelter

- Construct shed on dry and properly raised ground.
- Avoid water-logging; marshy areas.



- In low lying and heavy rainfall areas the floors should be preferably elevated.
- In temperate Himalayan region the floor may be made of wood.
- The shed should be 10 ft. high and should have good ventilation.
- Bucks should be housed in individual pens.
- Does can be housed in groups up to 60 per pen.
- Provide proper shade and cool drinking water in summer.
- Dispose of dung and urine properly.
- Give adequate space for the animals.
- Avoid over stocking or crowding.

Breeding and reproduction

- Animals in good health and having good physical features must be purchased in consultation with Veterinarian/ Bank's technical officer.
- Purchase animals which are ready to breed and in prime stage of production.
- Identify the newly purchased animals by suitable identification mark.
- Vaccinate the newly purchased animals against the diseases.
- Keep the newly purchased animals under observation for about 15 days and then mix the general flock.
- Unproductive animals should be culled promptly and should be replaced by the newly purchased animals or farm born one.
- Animals are to be bred at the interval of 8-9

eggs of internal parasites and treat the animals with suitable drugs.

- Provide clean and uncontaminated feed and water for minimizing the health disorders.
- Strictly follow the recommended vaccine schedule as given in Vaccination Program Section.



Care of Kids

Almost immediately after birth, the kids, if healthy and strong, are on their legs and make attempts for their mother's teats. Failure to reach the teats, however, is of no consequence, because the kids do not require nourishment for several hours after birth. If more than one kid is born, it may be necessary especially when they are very young, to ensure that the smallest of them gets its due share of milk, because it may be prevented from doing so by the stronger kids. In case the udder is too full, a proportion of the milk should be drawn from as otherwise the weight of the udder kids. In case discomfort to the animals. As soon as there is teats should be held by the hand and pressed into their will cause discomfort to the animals. As soon as there is teats should be held by the hand and pressed into their mouths. Once they have drawn a little of the milk, will not be long before they take to the normal methods of suckling.

Generally, male kids are heavier than the female kids. At birth, a male kid of the Beetal breed will

weigh about 3 kg. and a female kid about 2-3 kg. for the first three or four days after kidding, goat's milk like cow's milk is considered unsuitable for human consumption. This milk, the so-called colostrums, is yellowish in appearance and is viscous; it coagulates on boiling. It is nature's first provision of food for the born and it must be given to the kids whether they are to be the goat or artificially. Colostrums acts as a laxative and, because of its large contents of vitamin A and serum globulin, it confers immunity against certain diseases.

When about two weeks old, kids begin to nibble green food or dry fodder, and it would be well to see that small quantities of these are within their easy reach at this time. It is also important that kids are allowed plenty of open air and sunlight. In the hot weather, this can best be done by keeping them in an enclosure built round a tree so that they may also be provided with shade. The enclosure should be large enough to allow them plenty of exercise.

At the age of 2 to 3 months, the suckling may be practically discontinued and at four months the kids should be completely weaned because by this time they will become fit like the older goats to eat solid food, although they may as well be allowed to suckle a little longer.

Male kids, unless they are required for breeding purposes, should be castrated at the age of 2 to 3



months for it has been proved that castration improved the quality of meat. Otherwise, they should be kept separated from the female kids.

The rearing of kids may be either natural or by hand rearing and each has its advantages and



disadvantages. In India, it is the natural method that is usually practiced and this consists of in leaving the kid to take what amount of milk it can obtain from its mother. Hand rearing is resorted to when weaning is practiced or when the goat dies. There are two methods of hand rearing' one consists of feeding the kid with a bottle and the other is feeding it off the pail. Both methods are learned by them easily, but bottle feeding is to be preferred because the saliva that is produced during the process of suckling the milk aids digestion. Kids will also readily take to feeding on a foster mother when they are put on her teats.

Male kids for breeding should be fed and handled in much the same way as doe kids, except for the fact that they require a little more milk as well as grain ration than the female kids on account of the larger size they have to attain. Kids with body size below normal should be discarded, as they seldom prove good breeders when mature. They should be fed well at all ages to keep them in good condition, but excessive feeding should be avoided, particularly grain ration should be cut. At one year, a buck should receive 1.8 kg of grain

mixture the allowance being increased by 50 per cent during the breeding season. A liberal amount of fodder should be given. An average of 7 to 8 kg. of green fodder per day should be adequate for a full grown jamunapari buck when entirely stall fed.

Take care of new born kids by providing guard rails.

- Treat/disinfect the naval cord with tincture of iodine as soon as it is cut with a sharp knife.
- Protect the kids from extreme weather conditions, particularly during the first two months.
- Dehorn the kids during first two weeks of age.
- Male kids should be castrated for better quality meat production.
- Vaccinate the kids as per the recommended schedule.
- Wean the kids at the age of 8 weeks.
- Proper selection of kids on the basis of initial body weight and weaning weight should be initiated by maintaining appropriate records for replacing the culled adult stock as breeders.

Marketing

- The marketable product of goat farming includes the fattened kids, manure, culled animals, meat, offal, milk, butter and cheese, fibre and goat skin.
- Marketing avenues for the above products are slaughter houses and individual meat consuming customers and agriculture farms.
- There fore availability of either slaughtering facilities or traders who will purchase live animals should be ensured to convert the fatteners into wholesome meat and meat products.
- Further, demand for manure from nearby agriculture farms must also be ensured. □ □

Assistant Professor, Khalsa College of Veterinary Sciences & Animal Husbandry, Amritsar, panjab

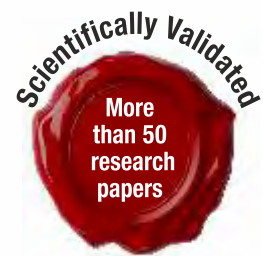
Corresponding author: E-mail: dranamika80@gmail.com



EXAPAR™

UTERINE CLEANSER AND RESTORATIVE

Effective Solution For Repeat Breeding & Other Reproductive Disorders



- Ensures timely expulsion of placenta after calving
- Helps in timely and proper involution of uterus
- As a co-therapy for post partum anestrus & repeat breeding

- As an ideal uterine cleansing agent after manual removal of retained placenta
- Helps in regulation of lochial discharge



500 ml



1 Litre



4 Bolus strip

World Egg Day

World Egg Day falls on the second Friday of October every year, when more than 40 countries around the world celebrate the food marvel that is The Incredible Egg! Versatile, affordable, delicious and nutritious — see how The Incredible Egg offers sustainable nutrition to help feed the world ...

Every day, egg farmers across the globe join together in their commitment to provide high-quality eggs to help feed the world's hungry.

Eggs contain several vitamins and minerals that are essential parts of a healthful diet. In many parts of the world, eggs are a readily available, inexpensive food.

In the past, there was some controversy about whether eggs are healthful or not, especially concerning cholesterol. The current thinking, however, is that, in moderation, eggs are healthful, as they can be a good source of protein and other essential nutrients.



Benefits

Eggs can provide a number of health benefits.

Strong muscles: The protein in eggs helps maintain and repair body tissues, including muscle.

Brain health: Eggs contain vitamins and minerals that are necessary for the brain and the nervous system to function effectively.

Energy production: Eggs contain all the nutrients that the body needs to produce energy.

A healthy immune system: The vitamin A, vitamin B-12, and selenium in eggs are key to keeping the immune system healthy.

Lower risk of heart disease: The choline in eggs plays an important part in breaking down the amino acid homocysteine, which may

contribute to heart disease.

A healthy pregnancy: Eggs contain folic acid, which may help prevent congenital disabilities, such as spina bifida.

Eye health: The lutein and zeaxanthin in eggs help prevent macular degeneration, the leading cause of age-related blindness. Other vitamins in eggs also promote good vision.

Weight loss and maintenance: The protein in eggs can help people feel full for longer. This can reduce the urge to snack and lower a person's overall calorie intake.

Skin health: Some vitamins and minerals in eggs help promote healthy skin and prevent the breakdown of body tissues. A strong immune system also helps a person look and feel well.

To experience the health benefits of eggs, a person should eat them as part of a balanced diet.

Nutrition

Energy 62.5 calories, Protein 5.5 grams (g), Total fat 4.2 g, of which 1.4 g are saturated, Sodium 189 milligrams (mg), Calcium 24.6 mg, Iron 0.8 mg, Magnesium 5.3 mg, Phosphorus 86.7 mg, Potassium 60.3 mg, Zinc 0.6 mg, Cholesterol 162 mg, Selenium 13.4 micrograms (mcg), Lutein and zeaxanthin 220 mcg and Folate 15.4 mcg.

Eggs are also a source of vitamins A, B, E, and K. Egg white and yolk are both rich sources of protein. Around 12.6% of the edible part of an egg is protein.

Number of states have added eggs as part of midday meals.

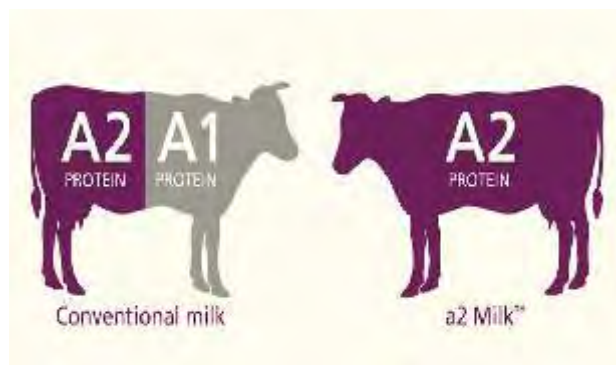
This is exclusively health, safe and nutritious faced for the children.

There is growing awareness among people that egg is Vegetarian so consumption of egg is likely to Increase in India.

A1 And A2 Milk-Its Impact On Human Health

Most common economically important milk constituents traits include fat, protein, SNF, lactose and ash. These characteristics and associated benefits have made milk an important part of the diet. Amongst the milk constituents, beta- casein has gained importance and popularity amongst the health conscious people due to its recent health related issues. Beta casein composition of milk and milk products has become an important economic trait of dairy animals. Our indigenous dairy animals produce A2 milk and India is endowed with rich A2 dairy animals since our civilizations, protecting the masses from ill effects of A1 milk. It is a matter of great concern for the health of people in India. There is a urgent need to go through our breeding policies to stop producing A1 milk.

Milk is the complete food for the infant. It contains the essential micro-nutrients needed for growth and development of human health as well as for the neonate animal. In USA, Australia, New Zealand and other developed countries, people use to consume milk according to their needs and use milk like A2 milk, since A2 milk is harmless whereas A1 milk is harmful for health. So, our future breeding policies for dairy animals should be done in a systematic manner, keeping an eye on producing clean and healthy milk which is none other than A2 Milk.



What actually is A1 and A2 milk?

Milk contains about 85% water. The remaining 15% is the milk sugar lactose, protein, fat and minerals. Beta-casein is about 30% of the total protein content in milk. A2 milk is the milk that contains only the A2 type of beta-casein protein whereas A1 milk

contains only A1 beta casein or A1A2 type variant. A1 protein variant is commonly found in milk from crossbred and European breeds of cattle. A2 milk is found basically in indigenous cows and buffaloes of India (Asia as a whole). A2 milk is branded by the A2 Milk Company like A2 Corporation and sold mostly in Australia, New Zealand, United Kingdom and other developed countries.

History of A1 and A2 Milk

A2 beta-casein is the beta-casein from cows that have been produced since before they were first domesticated over 10,000 years ago. It has no known negative effects on human health. In the past few thousand years, a natural mutation occurred which has resulted in a proportion of cows of European breeds producing a casein variant called A1 beta-casein. Slowly, these protein variant became dominant in milk which producing A1 milk. The gene encoding beta-casein was changed such that the 67th amino acid in the 209 amino proteins was switched from proline to histidine. This new kind of beta-casein that was created is known as A1 beta-casein which is found in the milk of many crossbred cows such as Holstein, jersey and Friesian.

Basic genetics of A1 and A2 milk

The A1/A2 status of a cow is determined by a pair of genes on the sixth chromosome (Rijnkels, 2002). There are two major alleles of the gene i.e A1 and A2 beta- casein alleles. A cow carries two

Prasanta Boro¹, Binoy Chandra Naha²,
Deep Prakash Saikia³, Chandra Prakash⁴

copies of the beta-casein gene; she can carry either of A2A2 (homozygous), A1A2 (heterozygous) or A1A1 (homozygous) alleles. Neither allele is dominant over the other rather; they are co-dominant i.e. additive in their effect. Therefore, an A1A2 cow will produce A1 and A2 beta-casein in equal amounts. An A2A2 cow will only produce A2 beta-casein and an A1A1 cow will only produce A1 beta-casein. The Northern European breeds of cows such as the Friesian and Holstein carry the A1 and A2 allele at about equal levels. The Southern European breeds and the Jersey carry the A1 allele at about 35% and 2/3 of A2. Exceptionally, Guernsey breed appears to carry the A1 allele at less than 10% and the Scottish Ayrshire breed appears to be well over 50%. In addition, individual herds may carry the allele at levels that are quite different to the average for the breed. If a cow is A2A2 then she is guaranteed to pass on the A2 allele to her progeny. Similarly, an A1 cow is guaranteed to pass on the A1 allele. For an A1A2 cow there is a 50% chance of passing on either of the allele.

Status of Milk protein variants in Cattle

Researches conducted on indigenous cows (Zebu type), buffaloes and exotic cows (*Taurine type*) have revealed that A1 allele is more frequent in exotic cattle (A1 milk) while Indian native dairy cows and buffaloes have only A2 allele and hence are a source for safe milk i.e A2 milk (Mishra et al., 2009). The A2 allele gene in Indian milk breeds of cows and buffaloes are 100% (Red Sindhi, Sahiwal, Tharparkar, Gir and Rathi), other Indian breeds used for farming, is around 94 per cent (Joshi, 2011) and while in foreign breeds (HF and Jersey), it is around 60 per cent (NBAGR, 2011). A1 β -casein is absent in the milk of pure Asian and African Cattle (Ng-Kwai-Hang and Grosclaude, 2002). So, our indigenous cows and buffaloes produce A2 milk.

Milk protein and BCMs

Bovine milk protein is composed approximately of 80% casein and 20% whey (Shah, 2000; Niki et al., 1994; Martien et al., 1994). But according



to some researchers whey proteins constitute about 14% (McLachlan, 2001; Roginski, 2003). It contains four components namely α s1 (CSN1S1, 39–46%), α s2 (CSN1S2, 8–11%), β (CSN2, 25–35%), and κ (CSN3, 8–15%) of total caseins (Eigel et al., 1984; Roginski, 2003, Rijnkels, 2002) whereas human milk casein is composed of primarily β , and κ 1. β -casein is the second most abundant protein and crucial for casein micelle structure. Beta-casein is 30% of the total protein content in cow's milk. The polymorphic status of bovine β -casein is confirmed, and till date 13 allelic variants have been identified (Kaminski et al., 2007). Amongst these, A1 and A2 variants are reported to be the most common allelic variants of β -casein in dairy cattle (Farrell et al., 2004). The polymorphic nature and its association with milk, fat and protein yield attracted several efforts in evaluating this locus as a potential dairy trait marker (Ikonen et al., 1999; Caroli et al., 2004; Kucerova et al., 2006). Consumption of milk of certain breeds of cow, buffaloes, sheep and goat may result in the release and possible absorption of bioactive peptides like BCMs. These peptides yielded by the digestion of β -casein have opioid effects similar to morphine, and so named β -casomorphins (β -CMs). The β -CMs have unique structural structural features that impart a high and physiologically significant affinity with the binding sites of endogenous opioid receptors (Meisel and FitzGerald, 2000). Of the protein variants A1 betacasein yields BCM-7 whereas A2 betacasein does not give rise to BCM-7 upon digestion

(Woodford, 2006; Bell et al., 2006). β -CM-7 has been well established as a potent bio-active peptide with opioid activity.

Mechanism of BCM-7 generation in the Small intestine

The A1 and A2 variants of bovine β -casein differ at amino acid position 67 with histidine in A1 and proline in A2 milk. This polymorphism leads to key conformational changes in the secondary structure of expressed β -casein protein (Elliot et al., 1999; McLachlan, 2001). Due to presence of histidine at amino acid 67 position, digestion of A1 β -casein milk releases a 7 amino acid bioactive peptide called beta-casomorphin 7 (BCM-7) in small intestine, while proline in A2 milk at 67 position prevents the split at this particular site and generates peptide BCM-9 (Roginski, 2003; Kostya et al., 2004). It is believed that generation of BCM-7 is the major causative factor associated with A1 milk related health disorders. However, A2 β -casein not been linked to any of such health issues (Kaminski et al., 2007).



Impact of A1 and A2 milk on human health

Milk from dairy cows is providing a high quality source of protein and an essential micronutrients like energy, calcium, magnesium and phosphorus to human beings since long time (Bell et al., 2006). A significant relationship was observed between bovine milk protein consumption and the incidence of type 1 diabetes and CVD (McLachlan, 2001; Laugesen and Elliott, 2003; Elliott et al., 1999; Thorsdottir et al., 2000; Virtanen et al., 2000; Monetini et al., 2002; Birgisdottir et al., 2002), arteriosclerosis


(Tailford et al., 2003). Besides, neurological disorders such as schizophrenia and autism (Woodford, 2006), and sudden infant death syndrome were also appeared to be known to potentiated by milk (Sun et al., 1999; Sun and Cade, 1999; Sun et al., 2003). The relationship between disease risk and bovine milk consumption is the focus of this review with special emphasis to A1 and A2 hypothesis.

In many of the medical literature we get to know the link between the development of ischemic heart disease (CVD) and specific milk protein intake (McLachlan, 2001; Laugesen and Elliott, 2003; Tailford et al., 2003). Besides, some populations such as the Masai (East African) and Samburu (Northern Keyan) had virtually no heart disease despite consuming a diet rich in animal milk. But that milk fortunately came from Zebu cattle, which is a breed that carries the A2 allele exclusively (McLachlan, 2001). Western countries, which had similarly high bovine milk consumption from predominantly the Holstein breed, jersey and other breeds had a greater incidence of CVD than nations with low milk consumption. It is so because people of small nations consume fortunately A2 milk. But epidemiological analyses concerning the two alleles of β -casein and the incidence of CVD underscores the apparent relationship between the risk of chronic disease and milk protein variant intake (McLachlan, 2001; Laugesen and Elliott, 2003). Above all many researchers have claimed the relationship of A1 milk with many human diseases like CVD, autism, schizophrenia etc (Woodford, 2011, Mishra et al., 2009).

The Food and Agriculture Organisation (FAO) (2012) has reported increase in many chronic diseases arising out of milk. These diseases if studied thoroughly can be alleviated by improving the health benefiting milk components. The β -casein composition of the protein fraction has become of special interest recently because of a possible relationship

between β -casein genotype and the health of population of consumers. Genetic variants in bovine β -casein gene (A1 and B) release a bioactive peptide, β -casomorphin-7(BCM-7) upon digestion, responsible for many human disorders like Type 1 diabetes, autism, schizophrenia and heart diseases but A2 milk does not cause such type of illnesses (Keith Woodford, 2007; Mishra et al., 2009; Sodhi et al., 2012). Infants may absorb β -CM-7 due to an immature gastrointestinal tract. Adults, on the other hand, appear to reap the biological activity locally on the intestinal brush boarder. B-CM-7 can potentially affect numerous opioid receptors in the nervous, endocrine, and immune systems.

Whether there is a definite health benefit to milk containing the A2 genetic variant is unknown and requires further investigation unlike harmful effects of A1 milk. With the increasing intake of dairy products, the consumption of other essential nutrients such as zinc, vitamin A, magnesium, folate, and riboflavin are also increasing (Weinberg et al., 2004). However, we are able to get only about 700 mg of calcium per day, which comes primarily from dairy products (Weinberg et al., 2004; Ervin et al., 2004). This amount is against the recommended amount of 1,000–1,500 mg (NIH Consensus Development Conference, 1994). Most other food sources contain low concentrations of calcium. Calcium content of milk, may reduce the risk of osteoporosis and colon cancer (Heaney et al., 1999; Birt et al., 1999) and including milk in the diet may promote weight loss (Phelan et al., 2003). The ideal calcium to magnesium ratio for the human body should be 2:1. The A1 milk's ratio is 10:1. By relying on A1 cow's milk for calcium, we will have magnesium deficiency and imbalance, but A2 milk does not cause such imbalances. Magnesium relaxes us, helps improve digestion, is antiinflammatory in action, involved in nerve and muscle function, de-toxifier, increases alkalinity of the blood and flexibility of the tissues. Magnesium is required for the body to

| WHY A2 MILK SCORES | | |
|---|--|---|
| <p>There are about 40 indigenous cow breeds</p>  | <ul style="list-style-type: none"> ➤ Milk from Indian cows has A2 type of beta casein protein, which is said to be closer to mother's milk and easy to digest ➤ Some studies have shown that | <p>A1 type of beta casein – from foreign and crossbred cows – can potentially lead to ailments like diabetes and heart disease. But jury is still out on this</p> |

produce and store energy. Without magnesium there is no energy, no movement, no life. So, A1 milk will lower magnesium levels whereas A2 milk does not. The inflammation from A1 milk casein causes lymphatic congestion and metabolic suppression. A1 milk worsens acne, eczema, upper respiratory infections, asthma and allergies. It causes digestive problems, not because of the lactose but because of massive histamine release from casomorphin. Ear infections, bronchitis, tonsillitis are driven by A1 casein. A1 milk casein causes endometriosis because of its inflammatory and immune-disruptive effect. Endometriosis is a gynecological condition in which cells from the lining of the uterus (endometrium) appear and flourish outside the uterine cavity, most commonly on the membrane which lines the abdominal cavity. Many women with infertility may suffer from endometriosis and other reproductive complications.

CONCLUSION

We can now conclude that we should drink A2 milk only as it prevents us from milk related health complications especially from A1 milk. More research is also required to prove the reality of the hypothesis of A1 and A2 milk. In this aspect, Government's support is needed to accomplish the above anomalies of milk quality and standards to improve the health of the people.

□ □

ICAR-Indian Veterinary Research Institute, Izatnagar, Bareilly, U.P
 1. PhD Scholar, LPM Section, ICAR-IVRI 2. PhD Scholar, Animal Genetics Division, ICAR-IVRI 3. PhD Scholar, Veterinary Biotechnology Division, ICAR-IVRI 4. MVSc Scholar, Animal Genetics Division, ICAR-IVRI, email: boroprasanta99@gmail.com



For Various Skin Problems

FMD LESIONS

PYODERMA

DEEP SEATED WOUNDS

MANGE

SCABIES

One Solution

CHARMIL[®] Plus

MULTIACTION SKIN GEL

Also available
in spray form

Enriched
with
**Neem
oil**



300ml



100ml



25g



50g



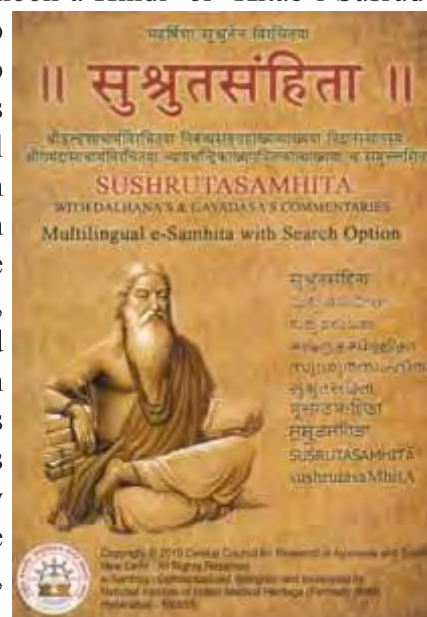
1Kg

Father of Surgery-Shalihotra



Shalihotra was the teacher of Susrut, who is considered as 'Father of Hindu Surgery' and his work 'Susruta Samhita' is the earliest known work dealing with surgery.

Shalihotra, the first known veterinarian, was an expert in horse husbandry and medicine and composed a text 'Asvashastra'. He is regarded as 'The father of veterinary Science in India'. Seventeen Shloka of 'Asvashastra' deals with disease prognosis from eye symptoms and two shloka are related to judging the age of Horse (Capt M.S. Apte 1939). In one of the manuscript entitled 'Asvayurveda Siddhayoga Samgraha' (P.P.S. No 11251 and Burnell's catalogue No. 12302, S.M. Library, Tanjore) Shalihotra describe himself as son of God Surya and having learned the science of Horses from Brahma himself and as having taught to his disciples. **Shalihotra was the teacher of Susrut, who is considered as 'Father of Hindu Surgery' and his work 'Susruta Samhita' is the earliest known work dealing with surgery.** According to evidence with Indian scholars, Dhanvantari's direct disciple of Susruta belonged to 600 BC. He made great improvement in the general techniques of surgery and performed many new and major operations. Susruta Samhita testifies to the great scientific knowledge of the ancient Indian surgeons. It was translated into Arabic before the end of 800 AD and was called 'Kitab-Show-Shoon-a-Hindi' or 'Kitab-i-Susrud'; Cellars translated into Latin and Hassler into German. The students were taught surgical techniques first on dummies and later on dead bodies. Before Susruta's time, knowledge and practice of surgery in India was more or less of the same standard as in contemporary civilizations like Egypt, Mesopotamia, and Greece.



IGNITE THE RUMEN FUNCTIONS WITH 4 WAY ACTION



Increased salivary secretions

Balanced rumen pH

Optimized rumen contractions

Enhanced rumen microflora



For better digestive functions
and improved milk production

Choose

RUCHAMAX[®]

APPETITE STIMULANT AND DIGESTIVE TONIC



Cattle Age Determination

The age of cattle is determined chiefly by examination of the teeth, and less perfectly by the horn rings or the length of the tail brush.

Teeth Method

Cattle are placed in a cattle crush in order to restrain them prior inspecting the mouth and amount of teeth that each animal has. The temporary teeth are in part erupted at birth, and all the incisors are erupted in twenty days; the first, second and third pairs of temporary molars are erupted into thirty days; the teeth have grown large enough to touch each other by the sixth month. Temporary incisors or “milk” teeth are similar than the permanent incisors.

Cattle have thirty-two teeth, including six incisors or biting teeth and two canines in the front on the bottom jaw. The canine teeth are not pointed but look like incisors. The incisor teeth meet with thick hard dental pad of the upper jaw. Cattle have six premolars and six molars on both top and bottom jaws for a total of twenty-four molars. The teeth of cattle are designed primarily for grinding and they use their rough tongues to grasp grass and then nip it off between their incisors and the dental pad.



Dr. R. K Singh



There is controversy on the reliability of attempting to tell the age of cattle by their teeth, as rate of wear can be affected by the forage that is grazed. Drought or grazing on sandy country will also affect rate of wear.

The following is a guide

1. 12 months – all the calf teeth are in place.
2. 15 months – Centre permanent incisors appear.
3. 18 months- Centre permanent incisors showing some wear.
4. 24 months – First intermediates up.
5. 30 months- Six broad incisors up.
6. 36 months- Six broad incisors showing wear.
7. 39 months- Corner teeth up.
8. 42 months- Eight broad incisors showing wear.

The development is quite complete at from five to six years. At that time the border of the incisors has been worn away a little below the level of the grinders. At six years, the first grinders are beginning to wear, and are on a level with the incisors. At eight years, the wear of the first grinders is very apparent. At ten or eleven years, used surfaces of the teeth begin to bear a square mark surrounded by a white line, and this is pronounced on all the twelfth years; between the twelfth and the fourteenth year this mark takes a round form.

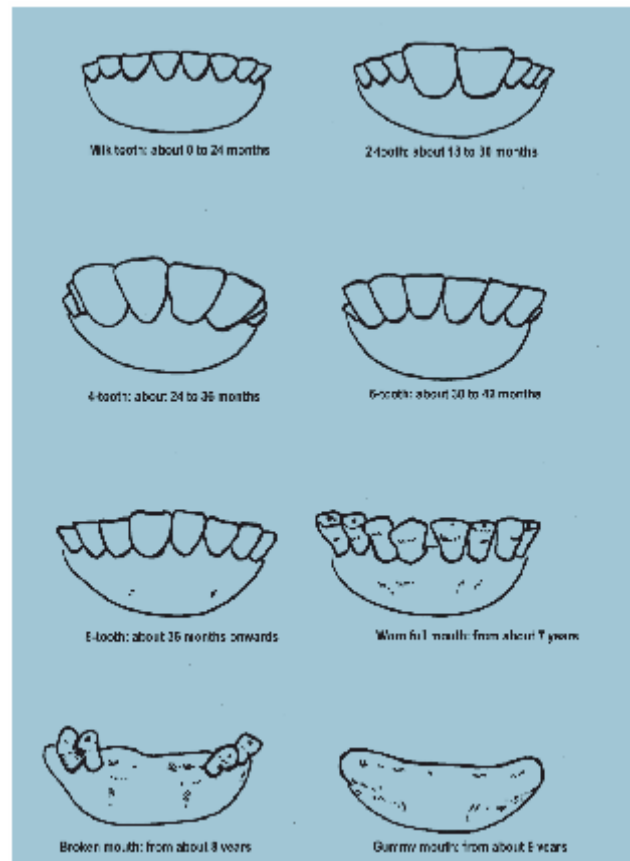
It is a requirement on some locations that prime



cattle have a dentition indication mark on them prior to auction. This is normally done by the vender, or the stock agent. Fat cattle auction in New South Wales, Australia identify the amount of the teeth that prime animals have in the form of sprayed marks along the back. Thus two tooth cattle are marked on the wither, four tooth on the middle of the back and six tooth on their high bone (near tail). Milk and eight tooth cattle are not marked.

Horn method

The rings on the horns are less useful as guides. At ten or twelve months the first ring appears; at twenty months to two years the second; at thirty–two months the third ring, at forty to forty–six months the fourth ring, at fifty four to sixty months the fifth ring, and so on. But, at the



fifth year, the three first rings are indistinguishable, and at the eighth years all the rings.

Tail Brush Method

The brush of the tail is only useful as a guide when assessing small, stunted or young cattle. A brush that is about fetlock length or longer is an indication that the beast is twelve months old or older.

Other methods

Cattle age in a carcass is determined checking the physiological skeletal maturity (ossification) (red) of the tips or “buttons” are important considerations as well as the color and texture of the flesh. The use of number (years) branding, tattoos or ear lags with numbers or different colors are good methods of identifying the age of cattle, if they are used according to standards. □ □

Jamshedpur, Jharkhand

Combat Parturition & Lactation Stress with...



RESTOBAL[®]

HERBAL IMMUNOMODULATOR, ANTISTRESSOR AND REJUVENATOR

**Powerful Solution for Better
Immunity and Productivity**





News and Views

PM Launches National Animal Disease Control Program and National AI Program

Prime Minister Narendra Modi launched the National Animal Disease Control Programme (NACDP) to control and eradicate the Foot & Mouth Disease (FMD) and Brucellosis amongst the livestock in the country, at Mathura today. The 12,652 Crore fully Central Government-sponsored programme will vaccinate over 600 million cattle in the country in an effort to mitigate the two diseases.

The Prime Minister also launched the National Artificial Insemination Programme and a countrywide workshop in all the Krishi Vigyan Kendras (KVKs) in all the 687 Districts of the country on vaccination and disease management, Artificial Insemination and Productivity.



Addressing a huge gathering the Prime Minister said, “Environment and Livestock were always at the core of India's economic thought and philosophy. And hence be it Swachh Bharat or Jal Jeevan Mission or promoting Agriculture & Animal Husbandry we always try to maintain a balance between Nature and Economy. And this

is what enables us to build a strong new India.”

The Prime Minister also launched several other programmes concerning Livestock Health, Nutrition and Dairy Farming.

“We need to find an appropriate solution for the regular supply of green fodder and a nutritious diet to the livestock. “Innovation and new technology is the need of the hour, to expand the Dairy Sector in India. We have launched the “Startup Brand Challenge” so that these innovations could come from our villages. ”

Atul Chaturvedi appointed as Secretary, Dept of AH and Dairying GOI

Atul Chaturvedi an IAS of 1986 batch from Assam And Meghalaya cadre is appointed as the Secretary of Department of Animal Husbandry (AH) and Dairying, Ministry of Fisheries, AH and Dairy GOI. He has taken the charge from Tarun Shridhar an IAS of 1984 batch from Himachal Pradesh cadre on his superannuation on 31st July.



With the formation of a separate Ministry for Fishery, AH & Dairying which was until recently with the Ministry of Agriculture and Farmers Welfare, the Modi Sarkar 2.0 has clearly laid down its priorities and recognised the AH sector at par with the Agricultural Sector as an important contributor in the country's GDP. Appointment of vastly experienced Officer in the form of Atul Chaturvedi shows the commitment and vision of the Government in making the AH a

commercially vibrant sector.

Suresh Chitturi appointed as chairman of International Egg Commission

Suresh Chitturi, Vice Chairman and Managing Director of Srinivasa Farms, has been appointed as Chairman of International Egg Commission. Chitturi took over as the Chairman at the IEC Global Leadership Conference which was held in Copenhagen from 22nd - 26th September 2019. He will hold this position for the next two years.



Mr Chitturi is the first Asian to become Chairman of IEC. He achieved this position for his contribution in advocacy for the poultry industry, at an international level.

Poultry Industry demand Agriculture status

31st Annual General Body Meeting of Poultry Federation of India (PFI) held at Coimbatore on 20 and 21 Sep 2019. More than 500 delegates from poultry Industry from all over the country participated in the Annual Meet.

Participation of the Central Minister in the event has provided a direct opportunity to the PFI to discuss the problems of the Poultry Industry on one to one basis. Poultry Industry is



going through a rough patch due to a decrease in domestic demand and the rising feed cost due to unavailability of the raw material. This year's heavy rain has also played the spoilsport.

Poultry Industry in India has always been a neglected child of the Government and it has on its own managed an annual turnover of more than 1lakh crore. There are no firm policies of the Government to support an industry which has provided a vital role in ensuring the Food Security of the Nation through the cheap source of high-quality protein. Poultry Industry is also providing huge employment opportunities in both Rural and Urban region.



Poultry Industry is struggling on the various front including the high cost of Poultry feed and ever-volatile fluctuations in the rates of eggs and chicken. The government could lend a hand of support by declaring the Poultry at par with the Agriculture and Dairy Industry. People involved in the Poultry industry should be treated as Farmers and subsidies should be provided so as to enable the Poultry Industry to compete at both Domestic and International markets.

Recently the Government has provided big relief by allowing the import of Maize which has up to some extent halted the march of price rise of the poultry feed. If Government could include Eggs in the midday meal program, it would not only provide cheap and good quality protein source to the malnourished children but would create a huge demand of the eggs at the domestic level.

□ □



Expert's Advice



Dr. P.K. Srivastava
Senior Veterinarian

Q1. What is the importance of artificial insemination?

Ramu, Bikaner

A. A.I. is the technique in which semen is collected from the superior bulls and introduced into female reproductive tract at proper time with the help of instruments. The major advantage of AI over natural mating is that it permits the dairy farmer to use top proven sires for genetic improvement of his herd and enables dairy farmers to breed individual cows to selected sires according to their breeding goal.

Q. What are the mastitis control measures?

Ramesh, Jodhpur

A. The important features of successful mastitis control programme are:

- Regular testing of animal for sub clinical mastitis.
- Adopt hygiene measures.
- Post-milking teat dippings be adopted.
- Institute dry cow therapy.
- Increase udder resistance to mastitis.

Q. How lameness in dairy animals affects the reproductive efficiencies. How farmers can contact / check lameness?

Jamshed, Punjab

A. Due to pain animal does not express signs of heat. It is related with reproduction failure.

To control / check lameness farmers must;

- Always undertake hoof trimming every six months
- Always feed mineral mixture regularly
- Take the help of qualified veterinary doctor if problem is severe / clinical.

Q. Dear Sir, I am a student of class 12th in Pune. Will you kindly let me know how to apply to top Veterinary Colleges in India Please let me know there telephone nos and website addresses also.

Vivek Sharma, Pune

A. There are number of colleges in India. The VCI conducts the exam for admission ou may please visit VCI website & contact their New Delhi Office. Dear friend, here is a list of colleges you can join in those colleges;

- Maharashtra Animal & Fishery Sciences University, Nagpur
- College of Veterinary & Animal Sciences, Parbhani,

- Nagpur Veterinary College, Nagpur
- Bombay Veterinary College, Mumbai
- College of Veterinary & Animal Sciences, Udgir
- K.N.P. College of Veterinary Sciences, Satara

To know their contact numbers you have to go the official website of a particular college.

Q. Sir, I am presently pursuing B.V.Sc. IIIrd year, I wanted to know career prospects after successful completion of this course. Kindly suggest.

Shriyansh Seth, Pune

A. Veterinary career is a very promising and scopes are increasing day by day. You can have an employment opportunity in Govt hospitals, Government projects, Research Companies, Pharmaceuticals, Universities, Animal Food Companies, Zoos and Wild Life, own your own private clinic.

Q. What are the main causes of infertility in dairy animals?

Rajesh Kumar, Delhi

A. Infertility is mainly caused by following reasons;

- Nutritional imbalance
- Reproductive tract Infections
- Congenital abnormalities
- Hormonal imbalance
- Management errors

Q. Is hormonal therapy is the best alternative to treat anoestrus?

A. The hormonal therapy should be adopted as the last alternative to treat anoestrus. It is not only costly for the dairy farmers but also is effective only when the nutritional status and the management of dairy animals is well in place. There are some effective herbal options available in the market which offer a good solution for the problem of anoestrus. One of the most effective herbal combination available is the use of Exapar (Uterine Cleanser and Restorative), Janova (For Inducing Ovulatory Oestrus) and Mintrus (Trace Mineral Caplets) combination which not only helps to bring animal into true heat but also pronounces the symptoms of heat. This combination acts in multiple ways of cleansing the uterus, correcting hormonal imbalance and supplementing the deficit of trace minerals required to bring animals into true heat.

**Clinically Tested
Scientifically Validated**

RELIEVES RESPIRATORY DISTRESS (IMPROVES PERFORMANCE & FARM PROFITS)



**INFECTIOUS BRONCHITIS
SNIFFING, RATTLING,
INFECTIOUS CORYZA
SNEEZING, COUGHING
FOWL CHOLERA
CHRONIC RESPIRATORY
DISEASE
GASPING**



Dosage

○ Doses (Per Day per 100 Birds)

Chicks – 2.5 ml

Growers – 5 ml

Layers/Broilers Finisher – 10 ml

○ For 5-7 Days by mixing in drinking water or as advised by veterinarian

In severe cases dose may be doubled & period of treatment may be increased



Feeding Strategies for Ameliorating Negative Energy Balance

The period of transition between late pregnancy and early lactation poses an enormous metabolic challenge to the high- yielding dairy cow. Parturition and onset of lactation impose tremendous physiological challenges to the homeostatic mechanisms of dairy cow and failure to adequately meet this challenge through a series of complex homothetic adaptations can result in a range of inter- related metabolic diseases, suboptimal production and high rates of culling in early lactation (Godden et al. 2003). Negative energy balance mainly affects the productive and reproductive performance of the animals, which altimetry affects the next parity of animals. Mainly high producing dairy cows enter a period of negative energy balance and body condition loss to support mammary milk synthesis after parturition. Alternative management along with the feeding strategies during the pre-partum (dry) and early post-partum period can ameliorate such type of losses effectively. Inadequate feed intake or limit – feeding to dry cows during dry period leads to the negative energy balance.



Dinesh Kumar¹, P K Yadav¹, Saroj kumar²
and Brishketu kumar³

Reasons for negative energy balance

- Changing hormonal status after parturition
- Reduction in DMI
- Deficiency and/or imbalance of nutrients
- High incidence of metabolic diseases



- Increased blood NEFA and the decreased body fat mass immediately postpartum are consistent with the decrease in expression of several lipogenic enzymes in adipose tissues (Ji et al.2012) and correspond with lower enzymatic rates.
- Copious synthesis of milk fat, protein and lactose postpartum is consistent with the market increase in nutrient utilization enzyme activity and expression of keys enzymes in mammary tissue (Bionaz et al. 2012)

Nutritional miss management of this period is responsible for: metabolic diseases typical to first 2wk of lactation: milk fever, ketosis, retained placenta, abomasal displacement. Metabolic disease occurring beyond this period is laminitis. Infectious diseases occurring during the first 2wk of location is mastitis, john's disease and salmonellosis.

Successfully prevention of negative energy

balance in postpartum cow and increased potential for successful reproduction revolves around five critical control points:

1. Maximizing d5ry matter intake
2. Stimulating rumen papillae development
3. Minimizing negative energy & protein balance
4. Maintaining calcium homeostasis
5. Minimizing immune system dysfunction

Maximizing Dry Matter Intake

Managing the multitude of PP health disorders more related to (nutritional) management of dry period than anything else. Cows in periparturient period show a greater decline in DMI than dry cows. Severity and duration DMI decline depends on many factors:

- Physiological factors
- Metabolic factors
- Diet composition
- Pregnancy status
- Environmental conditions

In most of the situations, 'drive to eat' increase with energy requirements. A major expectation of this rule appears to be the prepartum dairy cow, whose DMI is reported to decline during the weeks preceding parturition despite increasing energy requirements for fetal growth and lactogenesis. However, this decline is not universal. Coppock et al. (1972) reported no decline in DMI before calving, until dietary starch concentration exceeded 25% of the ration DM.

Points should be considered to maximizing dry



matter intake

1. Recording of feed delivery amounts and dry cow numbers
2. Critical evaluation and monitoring of non-dietary factors
3. Properly balancing the diet and monitoring fiber content and quality
4. Ensuring 24th feed availability
5. Monitoring and correcting for DM contents of vet feeds
6. Proper management of BCS to minimize over conditioned dry cow's

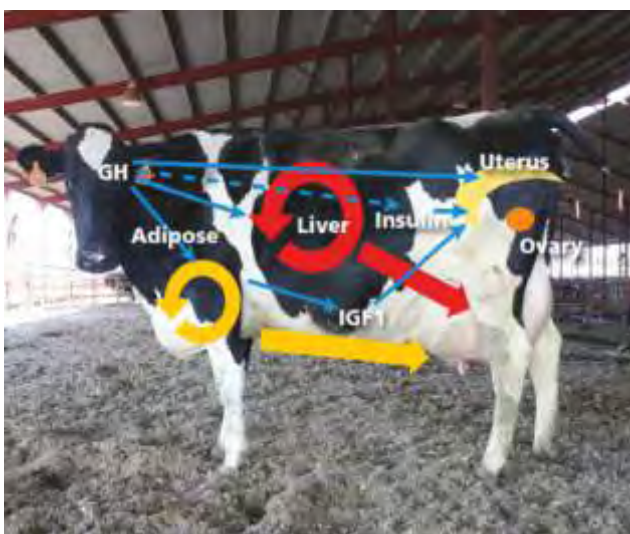
Feeding of non-fiber carbohydrates (NFC) or fats to the animals

As a cow approaches calving, it is absolutely essential that she continue to receive her entire daily allotment of energy and protein. The energy intake must not be compromised during the day before calving in order to prevent occurrence of ketosis. Any factor that exacerbates reduction in DMI (milk fever) may further add to the energy deficit. Provision of properly managed high energy-low fiber diet increases the energetic efficiency. Feeding other gluconeogenic precursors (propylene glycol) and fat may also show positive effects. Provision of non-fiber carbohydrates (NFC) as an energy source will

improve the transition success of the dairy cow. These benefits are believed to result from the following four factors:

- The ability of NFC to stimulate ruminal papillae development
- Acclimatization of the rumen microorganisms to the high NFC ration offered post-calving
- Provision of a more readily available supply of nutrients, such as glucose, for the conceptus to prevent maternal loss of energy reserves
- The insulin-stimulating effect of dietary NFC, suppressing lipolysis and reducing the influx of FA into the liver thereby reducing fatty liver and ketosis.

A high-energy diet provides adequate energy intake to animals, which reduces the extent of negative energy balance after parturition. In one of the studies by Van Knegsel et al. (2007) reported the effect of dietary energy source on the energy balance (EB) and risk for metabolic and reproductive disorders in dairy cows in early lactation. In his first studies, find that feeding extra glucogenic nutrients relative to lipogenic nutrients decreased milk fat and seems to decrease plasma non-esterified fatty acid (NEFA) and beta-hydroxybutyrate (BHBA) concentration. They fed a glucogenic or a lipogenic diet (isocaloric) to 16 dairy cows and EB was determined in climate-controlled respiration chambers from week 2 until 9 of lactation. Glucogenic diet decreased milk fat



yield and milk energy and tended to decrease body fat mobilization as compared with lipogenic diet (Van Knegsel et al. 2007) multiparous cows fed glucogenic diet had lower milk fat yield, higher calculated EB and lower plasma NEFA, BHBA and liver triacylglyceride concentration and tended to have fewer days to first postpartum ovulation. Thus, increasing the glucogenic nutrient availability improved the EB and had ability to reduce the risk for metabolic disorders and ultimately improve reproductive performance in dairy cows.

De feu et al. (2009) observed that, alternative management strategies during the prepartum (dry) and early postpartum periods that may ameliorate negative energy balance and they assigned 40 mature Holstein- Friesian cows to 2 dry period treatments [standard 8-wk dry period (SDP) or no planned dry period (NDP)] and 2 dietary energy density treatments [standard TMR (STMR) or high-quality TMR (HTMR)]. Milk yield during wk 1 to 12 postpartum was reduced in cows assigned to the NDP treatment. Energy balance and body condition score (BCS) during wk 1 to 4 postpartum were increased in cows assigned to the NDP cows compared with the cows assigned to the SDP treatment , and BCS increased from wk 5 to 12 postpartum in the NDP cows compared with the cows. Cows assigned to the STMR diet tended to have a higher conception rate to first service

compared with cows assigned to the HTMR diet. Energy balance and metabolic status can be improved by either eliminating the dry period or by feeding a higher energy diet. However, effects on the reproductive axis appear to be different.

Grummer et al. (2010) measured relationship between energy balance and reproductive performance. They concluded that the modification of diets fed during the dry or transition period were unlikely to have significant effects on postpartum EB and fertility. Rather, more radical alternation in dairy management are needed if energy status of postpartum cows is to be improved. They have examined the potential to alter EB by shortening or eliminating the dry period. In an initial study the effects of a 56, 28, and 0 d dry period on ovarian dynamics and reproductive performance of dairy cows were examined. Postpartum ED was improved by reducing the dry period; however, only significantly for the 0 d dry period. Cows on the 0 d dry period did not experience negative EB. Improvements in EB were a reflection of lower milk production and greater feed intake. Consistent with the improvements in EB, time to

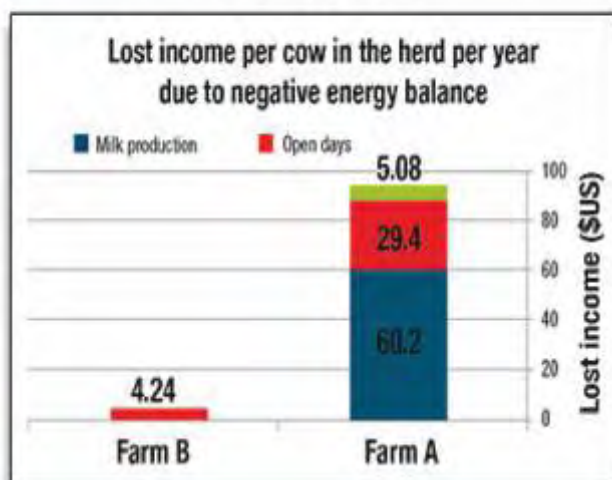


first ovulation and first service, first service conception rate, services per conception, and days open were all improved by reduction of dry period length.

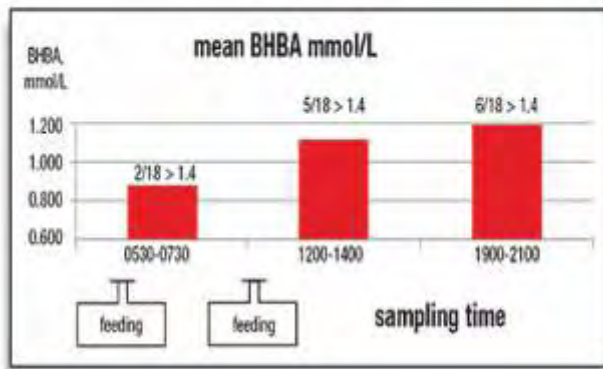
Dairy rations are often supplemented with rumen protected fat to increase the energy intake in the early postpartum period and to increase fertility (thatcher et al. 2006). Dietary lipid supplementation provided to improve energy balance (defrain et al. 2005), increases the overall dietary energy content, which stimulates milk production. An intended downstream consequence of this increased milk production is net energy loss, ultimately resulting in elevated levels non-esterified fatty acids (NEFA) and beta-hydroxybutyric acid (HBA) and lower concentrations of glucose and insulin (moallem et al. 2007). The reported positive effects of dietary lipid supplementation on milk production depend on the precise timing of provision, with the most positive result obtained when lipids are provided as the animal reaches positive energy balance. Supplying dietary lipids during the early postpartum period to ameliorate the negative energy balance is of little benefit to overall reproductive outcome. Indeed, pressure on metabolic health tends to increase further. Only glucogenic diets are able to alternate the adverse effects of negative energy balance on reproductive outcome.

Odens et al. (2007) and Castaneda-gutierrez et al.

Economic damage caused by negative energy balance in two dairies in Israel. Dairy A does not test BHBA levels or milk fat-to-protein ratios; Dairy B does both.



Average concentrations in blood of BHBA and number of cows with ketosis (BHBA over 1.4 mmol/L). Samples were taken three different times in one day from 18 cows that had recently calved.



(2007) demonstrated that feeding of trans 10, cis 12 CLA induced MFD which was paralleled with lower NEFA and higher IGF-I concentrations and thus an improved energetic status. We recently showed that feeding marine algae, which are rich in long chain omega-3 (n-3) FFA, caused a drop in milk fat content, but no beneficial effects could be seen on energy balance. The concomitant milk yield increase suggests that at least part of the spared energy is used to stimulate milk production.

Feeding of protein or protected protein to the animals

Protein requirement and supply is complex, with wide variations in the demand for amino acids as gluconeogenic substrates during the early postpartum period further complicating predictions of requirements for metabolisable protein and specific amino acids. Prepartum protein depletion adversely affects periparturient metabolic status, resulting in greater incidence of ketosis, hepatic lipidosis and other metabolic diseases. Subsequent location and reproductive performance may also be impaired either directly as a result of limited amino acid availability or indirectly as a result of metabolic disease. Importance of rumen-undegradable protein during late pregnancy mediated through a reduction in the degree of hepatic lipid

accumulation. The hepatic supply of protein or specific amino acids may be limiting for synthesis of apolipoprotein B required for hepatic lipid disposal via synthesis and secretion of VLDL. Rumen-protected methionine and lysine play a vital role to prevent the negative energy balances. Minimizing negative energy and protein balance point must be considered:

- Increase dietary energy and protein density in the dry diet
- Use a blend of carbohydrate and protein sources to ensure adequate amounts of RDR and UDP fractions
- Monitor forage quality and DM content
- Use good management practices to maximize DMI
- Include energy boosting feed additives (Ca propylene glycol) if necessary
- Increasing the trace minerals by 20-50% above NRC recommendations
- Force feeding rather than free choice mineral feeding
- Using more highly available organic mineral sources (chelates, proteinate)

Conclusion

Periparturient period needs to be carefully monitored with regards to nutritional management in terms of the balance between energy and protein, adequate micronutrient supplementation, and feeding routines to make the transition from the dry to the lactating stage as smooth as possible feeding FFA, irrespective of the fatty acid type, is not a good strategy to improve the dairy cow's energy balance. Lipid feeding during the transition period can significantly reduce dry matter (DM) intake and stimulate milk yield, further aggravating the metabolic pressure on the animal.

□ □

1. Research Associate, IVRI, Izatnagar, Bareilly, UP-243122(email-dr.dinesh7@gmail.com), 2. Teaching Personal, Sikkar Veterinary College, Rajsthan, 3. Assistant Professor, College of Agriculture, NAU, Bharuch, Gujarat Corresponding

WHEN KETOSIS & NEGATIVE ENERGY BALANCE THREATEN DAIRY PROFITS

Rely on

KETOROAK™

FOR PREVENTION AND TREATMENT OF KETOSIS

DOSAGE

200ml twice daily for 2 days, followed by 100ml once a day for next 2 days



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@ayurved.com
 • website: www.ayurved.com • CIN No. U74899DL1992PLC050587

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

<https://www.facebook.com/ayurvedindia/>
<https://twitter.com/ayurvedindia>

TRADITIONAL KNOWLEDGE®
MODERN RESEARCH

King of bitter-Kalmegh

An Multi-use Herb in Livestock Health

Common Name: Bhunimba, Yavatikta, Kalamegha, Kirata, Kriate, Kariyat, Creat.

Trade names: कालमेघ, Kalmegh, Kirayat

Introduction

Kalmegh (*Andrographis paniculata*) is hardy plant and has been used as medicine since time immemorial. This plant is also known as 'King of bitters' or 'Chiretta' in England. The fresh and dried leaves of Kalmegh are used as drugs in India.



Kalmegh is a very important medicinal plant of traditional medicine system. It is used in Ayurveda, Siddha, Unani and Homeopathy to treat broad variety of diseases. It is found growing wild throughout the plains and hills of tropical India, from Uttar Pradesh to Kerala, and also in Bangladesh, Pakistan and all South East Asian countries. It is cultivated largely in Rajasthan, Bihar, Chhatisgrah, Uttar Pradesh, Gujarat, Maharashtra and Madhya Pradesh are the major Kalmegh producing states of the country. In Madhya Pradesh alone it is cultivated in more than 2000 hectare.

The estimated production of Kalmegh plants in India is more than 10000 tonnes and the annual requirement is about 10-15000 tonnes necessitating the increase in its cultivation and higher production. Kalmegh (king of bitter) has been used as a quiet valuable herb in the

Ayurvedic and indigenous medical system for over 4000 years. The leaves and stem possess tremendous medicinal value. All part of plant are extremely bitter due to which plant is known as king of bitter. This plant is called Hemptedu Bumi (meaning bile of earth) in Malaysia. This medicinal herb effectively treats all type of fevers. It is also indicated in treatment of liver diseases and jaundice. It has antiviral and liver protecting action. It is one of the most highly regarded and widely used Ayurvedic herbs, believed to treat liver diseases. A famous Ayurvedic rejuvenative botanical used in many tonics and formulas, Kalmegh is the best liver tonic that helps to cure liver disease and there nourishment.

Traditional Uses of *Andrographis paniculata*

Kalmegh is extremely bitter medicinal herb useful in blood purification. In traditional medicine it is used for treating leprosy, gonorrhoea, scabies, boils, skin eruptions etc due to its blood purification properties. Its decoction prevents and treats liver diseases and fever.

The decoction/Kwath or infusion is also used in sluggish liver, indigestion, bowel irregularity, anorexia, abdominal gas and diarrhoea. Fresh leaf juice is given to prevent excessive bleeding during periods.

Botanical description

Andrographis paniculata is an annual, branched, herbaceous plant erecting to a height of 30-110 cm in moist shady places. The stem is acutely quadrangular; much branched and can be broken easily due to its fragile texture. Leaves are simple, opposite, glabrous, lanceolate, 2-12 cm long, 1-3 cm wide with acute entire margin. Inflorescence is terminal and axillary in panicle, 10-30 mm long with small bract and short pedicel. The flowers possess calyx with 5 sepals

which are small and linear. Capsule of the herb is erect, linear-oblong, 1-2 cm long, compressed, longitudinally furrowed on broad faces with thin glandular hairs. Seeds are very small.

Kalmegh as Medicinal herb

Kalmegh is considered to be one of the best herb for treatment of liver diseases in Ayurveda. Its leaves and plants are used in Ayurvedic and Unani medicines. It has been used for centuries



to successfully treat respiratory diseases, skin infections, herpes, dysentery, fever, sore throat, lower urinary tract infections, to reduce inflammation and to stop diarrhoea. Clinically, the use of this herb is reported in contemporary and ancient Chinese writings. In Traditional Chinese Medicine, *Andrographis paniculata* is a bitter and 'cold property' herb. It is used in the treatment of 'hot' conditions such as acute infections and fever, including throat infection, pneumonia, tonsillitis, dysentery, gastroenteritis and pyelonephritis. It is also prescribed for snakebite. In Ayurvedic medicine, it is used as a bitter tonic and stomachic, for diabetes, debility, hepatitis and as an anthelmintic. *A. paniculata* extract has been used in different forms, such as tablet or injection. In the Unani system of medicine it is considered aperients, anti inflammatory, emollient, astringent, diuretic, emmenagogue, gastric and liver tonic, carminative, antihelminthic, and antipyretic. Due to its blood purifying activity it is recommended for use in cases of leprosy, gonorrhoea, scabies, boils, skin eruptions, and chronic and seasonal fevers.

The knowledge on the benefits of *Andrographis paniculata* for human health has also led to its use in livestock production in Thailand. *A. paniculata* or mixtures of *A. paniculata* and other plants have been used to treat poultry in broiler production instead of antibiotics on several farms. Farmers believe that *A. paniculata* reduce mortality that is caused by digestive tract infections and respiratory tract diseases but little systematic research has been reported.

Major uses of Kalmegh in :-

- Antibacterial, antifungal
- Antiviral, antipyretic, adaptogenic, anti-inflammatory
- Improves immunity, Liver protecting
- Carminative, diuretic, gastric and liver tonic
- Choleric, hypoglycemic, hypocholesterolemic
- Bitter tonic, Blood purifying

Ayurvet working towards cultivation of Kalmegh for Quality Leaves

Since 2012, Ayurvet is working on cultivation of Kalmegh. It is associated with more than 150



farmers across pan India. Farmers got benefited by 25-30% higher and assured income. All produce/good quality leaves of Kalmegh is used for In-House production of animal health care products like Yakrifit, Ruchamax etc.

Conclusion

Andrographis paniculata has been treating various diseases and which are highly showing preventative effects against ailments like liver damage, infection, hyperglycemia, cancer, etc. Andrographolide, is a diterpenoid lactone having a diversity of pharmacological effects specified in indigenous system of medicine.

□ □



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 integration of agriculture and livestock along with skill and knowledge would play an important role.

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



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@ayurved.com

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



IS NOW



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

Thank you all for your valuable support



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@ayurved.com
• website: www.ayurved.com • CIN No. U74899DL1992PLC050587

Regd. Office:
4th Floor, Sagar Plaza,
Distt. Centre, Laxmi Nagar,
Vikas Marg, Delhi-110002, India

TRADITIONAL KNOWLEDGE[®]
MODERN RESEARCH