

# LIVESTOCK FUTURE



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Impact of COVID19 on Indian Poultry and Dairy Sector and Role of Vets



**Let the Rivers of Milk Flow**

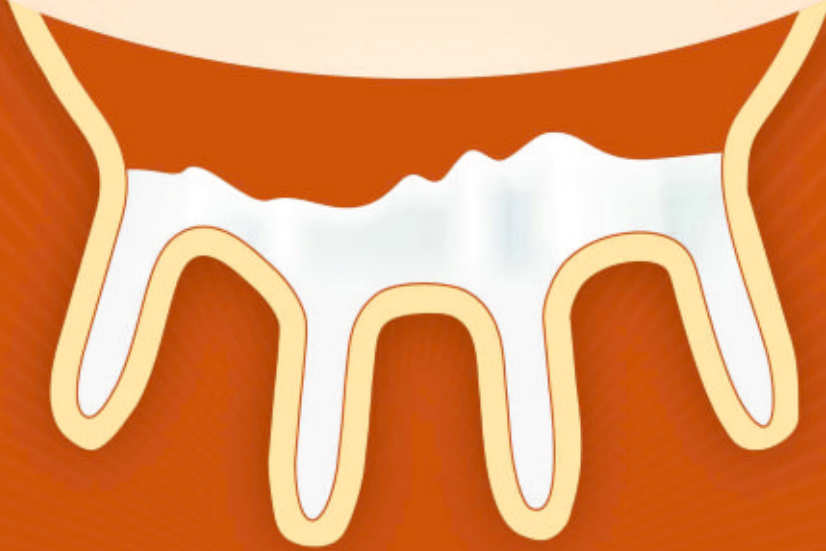
**Coccidiosis in large ruminants: Diagnosis, Treatment and their Control**

**Problems associated with Poultry in the Rainy Season**

**Bhumi Amla (Phyllanthus amarus)**

**Commercial Goat Farming: A Game Changer in Rural India Economy**

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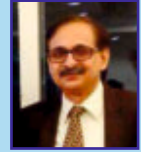
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## CONTENTS

### Editorial

	<b>2</b>
• Let the Rivers of Milk Flow	5
• Coccidiosis in large ruminants: Diagnosis, Treatment and their Control	9
• Commercial Goat Farming: A Game Changer in Rural India Economy	14
• Successful Organization of Webinars	19
• Nutritive Value of Egg	20
• Treatment/Handling the cases of	
• Poisoning in Pets & Farm animals	21
• Artificial Insemination in Poultry	25
• Problems associated with	
• Poultry in the Rainy Season	28
<b>Experts advise</b>	<b>32</b>
• Bhumi Amla <i>Phyllanthus amarus</i>	33
• Impact of COVID19 on Indian Poultry and Dairy Sector and Role of Vets	37





Dear Vets,

We present to you another digital issue Livestock Future. Your overwhelming response has been instrumental in keeping us motivated to bring this issue.


Animal husbandry is the most important source of livelihood for rural households, after agriculture. It provides meaningful employment and complements the income from agriculture. Animal breeding is an important area in animal husbandry. If the animal breeds timely, it will be productive. Having female calves, with the advent of sexed semen, is more a challenge. Under this, the Uttarakhand government is providing sexed semen to cattle rearers at the rate of Rs 100, so that only good quality female calves are born.

Now a days, special attention is being paid to the herbal solutions to improve immunity. Many companies are continuously launching such products in the market. Amul has launched turmeric ice cream, Turmeric, Ginger and Tulsi milk.

We as team, have be working with farmers to provide integrated solution for better livestock & human health. Our team is also engaged in cultivation of quality herbs for value creation.

Ayurved has be working closely with farmers to impart skills in the area of Animal health, cultivation of medicine plants, organic farming, vermicompost, biogas etc. Its main objective is to increase the income of the farmer and make them self-reliant.

We once again thank you for your support to Livestock Future.

  
(Anup Kalra)



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# Let the Rivers of Milk Flow

**Leptospirosis has a very wide range of natural rodent and non-rodent reservoir hosts which include rabbits etc. The domestic animals such as cattle, buffalo, goat, sheep and pigs carry the microorganisms and therefore act as carriers of the leptospire. Together the rodents and the cattle excrete a large number of organisms in their urine and thus are responsible for the contamination of soil as well as large and small water bodies.**

If one were to name one agricultural commodity that has withstood, to a great extent, the relentless assault of the novel Coronavirus it would surely be milk. Even during the peak of disruption of social and economic activities, the production and supply chain of milk, by and large, held good. This is not to build a case that the economic activity of dairying continued to flourish as usual, but merely to recognise the fact that whatever disruptions were witnessed, remained confined within certain geographic pockets and within short periods of time.

By and large, the supply of milk, an essential food item of daily consumption, remained uninterrupted throughout the country; and it is quite reassuring to learn that, unlike most other food items, both the producer and consumer prices remained stable and did not register any abnormal trends anywhere. It is nothing short of a miracle that this situation was obtained despite a significant fall in demand. Restaurants, tea shops, halwai shops all over the country have remained closed for over two months thus a crash in the demand of milk products, more so the value added ones.

In the post-Covid world, changes are expected in

the operating models of dairy cooperatives and companies in India and the world over. One of these would be creation of buffer stocks to tide over the crisis of depressed demand and to ensure remunerative prices to the dairy farmers. What makes dairy and its primary product milk so special makes an interesting study, especially so in our country which amidst formidable challenges has built one of the most effective procurement and supply chains of milk in the world.



Millions of stars, each not significant enough to count individually, collectively define our galaxy; it is aptly called the Milky Way. Millions in India begin their day with opening a half or

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Tarun Shridhar<sup>1</sup> and Sharad Gupta<sup>2</sup>

one litre poly pack of liquid milk, and this little quantity is an output of innumerable dairy farmers and their bovines. Who could imagine that a poly pack of half litre milk could be a great



economic and social equaliser.

A staggering 70 million farmers produced 187.7 million tonnes of milk during 2018-19, the output of 125.5 million milch cattle and buffaloes, worth nearly Rs 6,60,000 crore. This is more than the combined value of wheat and paddy, our two prime crops – more than an emphatic signal of the enormous wealth of Indian dairy. The dairy sector has been registering a consistent annual growth of over 6% for the last several years. This is a significantly higher growth compared to many other sectors of our economy. The overall agriculture sector has been near stagnant in its growth at around 2%, while dairy has been bucking this trend year after year. We account for more than 21% of the global milk production with each year seeing India add more milk to the global pool than the entire European community. This monetary wealth of Rs 6,60,000 crore has the potential of multiplying multifold in the coming years, thus becoming the lead engine of economic prosperity in rural India.

The wealth of the dairy sector is not merely

monetary. It also holds significant importance in our nation's socio-cultural fabric. Dairy, aka milk, has been at the forefront of establishing social equity and demonstrating the indomitable human spirit of cooperation wherein wealth gets shared amongst the big and small, rich and poor, strong and weak farmers; not through any imposed ideology or institutions of governance but through the fabric of cooperatives. A farmer with a marketable surplus of one litre milk is as important and responsible a participant in the sector as the one who may have thousands of litres of milk to market. Women, marginalised in society and decision making in the economy despite their invaluable contribution, have been the mainstay of the dairy economy and have tasted the fruits of empowerment through dairy



cooperatives.

The growth of India's dairy sector is closely aligned to the launch of Operation Flood in 1970, resulting in India's annual milk production rising from 23.2 million tonnes in 1973-74 to 187.7 million tonnes in 2018-19, an eight-fold growth in less than five decades.

Milk production from cows has increased from 39.7 million tonnes in 2005-06 to 89.8 million tonnes in 2018-19 and that from buffaloes from 52.1 million tonnes to 91.8 million tonnes.



Significantly, the share of cow milk has increased from 40.9% to 47.8% while that from buffaloes declined from 53.7% during 2005-06 to 48.9% during 2018-19. This has been mainly because of higher production from crossbred cows. This trend is likely to continue in the future.

Today, the White Revolution's contribution to farm incomes surpasses that of the Green Revolution. Every fifth rupee generated in the farm sector — which includes the total output value of crops, livestock produce, and fisheries — comes from milk.

According to estimates published in Dairy India (Edition Seven), the market for milk and milk products — in terms of the value paid by consumers — was Rs 5,26,403 crore in 2015, the biggest component being liquid milk at Rs 3,03,983.6 crore or 58% of the total value. The second largest segment was desiccated/coagulated products such as khoa, chhana and paneer. The value of these — used as base material for a variety of indigenous sweets and preparations—was Rs 81,000 crore (15.4%). This was followed by other products (at Rs 72,000 crore or 13.7%, mostly comprising traditional sweets), followed by ghee (Rs 40,200 crore or 7.6%) and curd/yoghurt/lassi/chhach (Rs 12,420 crore or 2.4%). On the other hand, the value of milk powder/whiteners (Rs 13,000 crore or



4.3%), table butter (Rs 2,450 crore or 0.5%) and cheese/edible casein (Rs 1,350 crore or 0.25%) was way below indigenous products.

Organised dairies in India have made considerable inroads into liquid milk marketing. Almost a third of milk sold to consumers now is in branded pouches. This share will only increase with the neighbourhood dudhia almost disappearing. Dairies have also grabbed a share of the market for curd and ghee, at least to the extent these are not made exclusively at home. But they have left the most profitable segment of indigenous milk sweets and preparations to the unorganised sector. The major strength of traditional dairy products is their mass appeal. The market as well as operating margins for these far exceeds that for western dairy products such as butter, cheese and whiteners. Their industrial production presents a unique opportunity to the organised sector. In this age of globalisation, projecting ethnic food and culture beyond their narrow regional confines makes for good business strategy. Domestic markets apart, there is enormous scope to also influence consumer behaviour overseas through exotic product offerings. 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.

Milk is a complete food. Of course, there have been cynics, albeit powerful ones, who have advocated that a complete food is one which contains animal meat. Their line of argument being that animal protein is an essential nutrient for the human body and that it is available only through meat, but that is not true. Virat Kohli, the captain of the Indian cricket team and acknowledged as one of the supremely fit athletes is a vegetarian, so is the erstwhile cricket hero Virender Sehwag. The Olympic medal winning wrestler Sushil Kumar too is a vegetarian as are the majority of Indian wrestlers who have brought glory to the nation in international events. Where do they draw their strength and stamina from? You need not look for an answer beyond milk.

It is quite common to consider that dairy products with reduced fat content are better. The calcium content of reduced-fat dairy products is relatively similar to the respective whole-milk products. Reduced-fat dairy foods are nutrient-rich and can assist in meeting the recommended intake of a range of nutrients. Cultured dairy products such as yogurt, buttermilk, and some cheeses have some additional advantages. They have less lactose and are good for lactose-intolerant individuals. The microbes, added as culture, help to improve digestion as well as

absorption of digested nutrients. Some studies suggest that the increased intake of calcium and lactose from dairy products may help to prevent ovarian cancer. Also, experts claim three servings of dairy in a calorie-controlled diet can help achieve greater weight loss. A per capita availability of 394 grams per day, way above the global average of 267 grams, should be an obvious answer to our nutritional requirements.

The power, reach, influence and potential of our dairy sector is incredible being ingrained in our culture and the way of living. This egalitarianism could get threatened if the cooperative mainstream does not go back to combining



farmer power with professional management and marketing. Already some enterprising entrepreneurs have started cashing on in the demand among urban consumers for low fat value added milk products. It may be more packaging and marketing hype rather than substance. What would milk be without its thick creamy layer emitting heavenly aroma; but then it is fads which get sold these days. Let us be reminded of a very apt saying, milk without fat is like non-alcoholic scotch. □ □

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<sup>2</sup> Editor & Publisher, Dairy India Yearbook, New Delhi & Co-Founder, [www.IndiaDairy.com](http://www.IndiaDairy.com)



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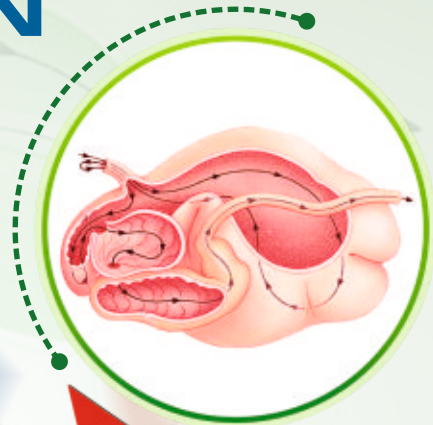


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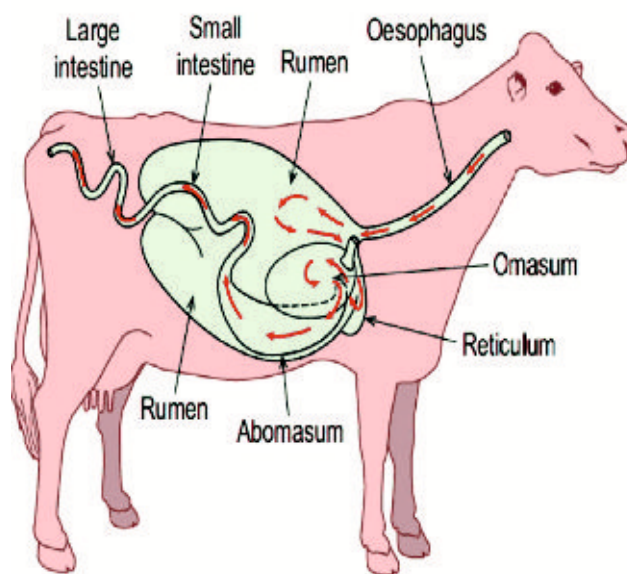
APPETITE STIMULANT AND DIGESTIVE TONIC



# Coccidiosis in large ruminants: Diagnosis, Treatment and their Control

The oocysts passed out through faeces from infected animals and shows symptoms but carrier animals are asymptomatic. The oocysts required moist warm weather for sporulation and after that it becomes infective. For sporulation to the oocysts, laboratory temperature, sufficient oxygen and moisture are required.

The oocyst of coccidia is a protozoan parasite found in the intestinal tract and strictly host specific; means coccidia found in large animals do not infect the birds. The oocysts passed out through faeces from infected animals and shows symptoms but carrier animals are asymptomatic. The oocysts required moist warm weather for sporulation and after that it becomes infective. For sporulation to the oocysts, laboratory temperature, sufficient oxygen and moisture are required. The time of sporulation may vary from hours to few days depending upon the environmental temperature. The coccidian oocysts are ingested by animals when they consume contaminated feed, pastures, water or licking infected dirty hair coat. After ingestion of



sporulated oocyst, it develop inside the body of host and much damage to intestinal cells resulting, blood streaks comes out with faeces. Once the oocysts become sporulate, it shows the highly resistant and survives longer in moist dampy places for months to years. So many species occurs in large ruminants but *Eimeria bovis* and *Eimeria zuernii* are commonest and most pathogenic species.

The grazing animals are exposed with coccidian infection asymptotically; however it is caused by species specific coccidian oocysts and developed the species specific immunity to the infected host. The animals get infection of the coccidia by the ingestion of large number of



Alok Kumar Singh<sup>1</sup>, Pradeep Kumar<sup>2</sup>, A.K. Jayraw<sup>3</sup>, Amit Singh<sup>4</sup> and J. Jayalakshmi<sup>5</sup>



sporulated oocysts. The weaning or shipping a long distance to the animals causes stress and these cause illness and animals show clinical symptom. If animals become sick shows anorexia, mild depression and clinical symptoms like diarrhoea with or without blood. Moreover in severe cases, leads to pale mucous membranes, depression, severe dehydration, straining and decreased weight. Occasionally infected animals showing neurological symptoms and confused with other disease. The older animals are resistant as compare to young one unless they are experiencing extreme stress condition or weak immune systems. The condition of coccidiosis with a single species of coccidia is uncommon while, mixed infections are commonly occurs in natural conditions.



The chronic form of disease causing decreased growth as well as stressor leading to susceptibility to other infections. It is primarily a disease that affecting young one, but also affects the older animals, which are immune compromised or poor body condition. Generally it occurs in confined areas, but also in free range such as shade and watering premises. Control of coccidiosis is mainly based on hygienic measures between calving and weaning periods and also by use of on

anticoccidial compounds.

### **Transmission of oocyst**

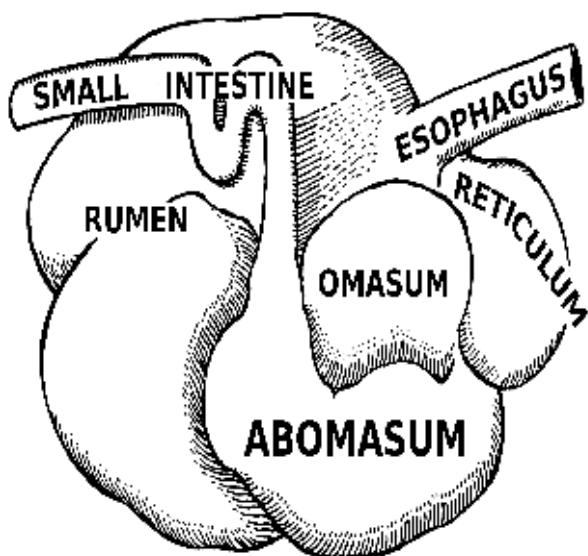
- The suckling calf infected by nursing the contaminated udders.
- It is transmitted from infected to susceptible animal by fecal oral route.
- The sporulated oocyst contaminate the feed, water and soil so that, animals get the infection easily by eating or drinking the contaminated sources,
- The infection is also occurring by licking itself or other infected animals.
- The severity of infection depends upon the number of ingestion of sporulated oocyst.
- Overcrowding and dampy places are more susceptible for the transmission of oocysts.

### **Clinical Symptoms**

- Chronic disease includes; anorexia, weakness, tremors, emaciation, rapid respiration etc.
- Abdominal pain, foul smelling diarrhoea with or without blood and mucus are main symptoms found in mixed infection.
- In severe cases animal may die.
- Listlessness, ear droopings, rough hair coat, soiled of hind quarters and partial paralysis of anal sphincter is also found.
- Fever occurs in secondary complications while, sub normal temperature in advance cases.
- In chronic condition animal may pass watery or pasty faeces with mucus tinged.

### **Suitable Diagnosis**

- By faecal examination through flotation technique is suitable diagnosis.
- It can also be diagnosed by symptoms includes; poor weight gain and bloody diarrhoea.
- Usually clinical symptoms occur at about 17 days after ingestion of sporulated oocysts.
- Postmortem examination is confirmatory diagnosis in acute cases by detection of intestinal lesion.
- The oocyst may also be found in the faeces of



normal healthy animals

### Possible Lesions

- Swollen and congested pin point haemorrhages occur in large intestine.
- Occasionally contents are filled with fluid and bloody streaks.
- The affected animals shows soiling of hind quarter, posteriorly upper part of hind legs, ventral portion of tail with faeces, blood and dirty hair.
- The intestinal mucus membrane shows reddening and congested terminally and pale in colour.

### Effective Treatment

- The effective drug amprolium should be given @ 10 mg/kg body weight for five days as treatment purpose.
- Decoquate, lasalocid and monensin are also used.
- The drugs administered in feed or water should be avoided because ill animals may not consume properly.
- By using of antibiotics to check the secondary infections.
- The most effective treatment for sick animal is fluid therapy.
- As per recommendations drugs should be used.

- Affected animals should be isolate for minimise the contamination of the premises.
- It is not necessarily those drugs used for preventive therapy who also useful for treatment and vice versa.

### Prevention and control of coccidiosis

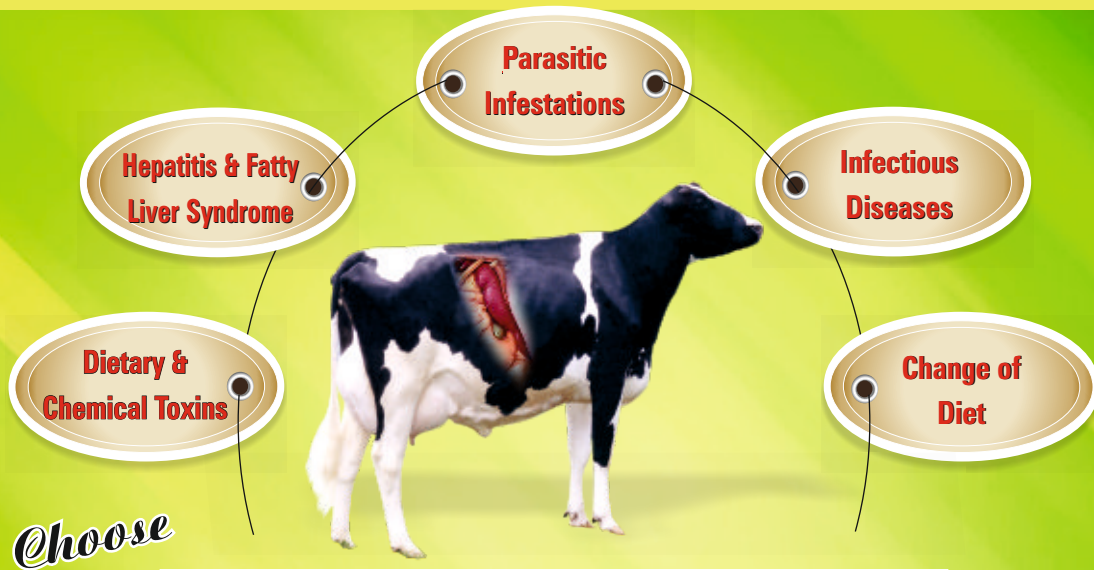
- Water tanks clean regularly.
- When new animals are introduced in herd it also need to regular cleaning of water tank.
- Refuse the muddy zone for grazing and provide clean pastures.
- Per animal space should be increases during the calving period.
- To ensure avoid the overcrowding.
- To ensure regular washing and scraping of pens.
- Clean bedding material should be provided.
- Preventive therapies are most effective program before showing clinical symptoms.
- Clean faeces from feed bunks before feeding.
- Areas between groups of cattle should be disinfecting.
- Quarantine and isolation process must be following the infected animal.
- For early prevention, clean the maternity pen regularly.
- For destroying the oocysts, drying and exposure to sunlight must be followed.
- According to lebel mixing of coccidiostats in feed and water.
- Susceptible area for oocyst must be restricting for grazing near pond.
- Do not allow the overgrazing as well as also avoid the animals forced to graze down to the plants root.

□ □

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# Commercial Goat Farming: A Game Changer in Rural India Economy

Goat rearing on commercial basis is going to a game changer in the India livestock farming post COVID19. As the economy of India has been severely affected due to this COVID19 Pandemic resulting a complete economic deadlock. Crores of person has lost their jobs due to this even crores of laboures has lost their job and returned bsck to their home from urban India and searching for means of their livelihood at their homeland. For thrm this Goat rearing will sure to become a means of livelihood. State Govt.& Central Govt. must come with such schemes related to commercial goat farming which will not only solve the problem of unemployment but also improve the socioeconomic status of poor people.

Goat popularly known as poor man's cow is widely distributed and clearly associated with poor people, their economic contribution is extremely important for the security and livelihood of these people throughout the developing countries. This contribution is varied, and the importance is reflected in terms of revenue generation, cash security and enhanced qualitative human nutrition.

Goats are among the main meat-producing animals in India, whose meat (chevon) is one of the choicest meats and has huge domestic demand. Besides meat, goats provide other products like milk, skin, fiber and manure. Goats are important part of rural economy, particularly in the arid, semi-arid and mountainous regions of the country. With more than 145 million

populations, provide food and nutritional security to the millions of marginal and small farmers and agricultural laborers. However, the productivity of goats under the prevailing traditional production system is very low.



It is because they are maintained under the extensive system on natural vegetation on degraded common grazing lands and tree lopping. Even these degraded grazing resources are shrinking continuously. Moreover, adoption of improved production technologies/ management practices in the farmers' flock is very low. Therefore, rearing of goats under intensive and semi-intensive system using improved technologies for commercial production has become imperative not only for realizing their full potential but also to meet the increasing demand of chevon (goat meat) in the domestic as well as international markets. More than 70 per cent of the total meat production comes from poultry, cattle, buffalo etc. and for that preference is limited due to socio-religious factors. Therefore, burden lies on goat and sheep meats. Rising per capita income, Growing urbanization and unfolding globalization are boosting the demand for high-value commodities including meat. Due to these

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Dr. Prem Shanker

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fast socio-economic changes in the recent past, a rapid shift has taken place in the dietary habits in favour of non-vegetarian diet. As a result, the demand for goat and sheep meats has swiftly increased and the domestic market price for chevon/mutton has risen from Rs 60 per kg to Rs 500-600 per kg over a decade.

Moreover, huge expected increase in the demand for meat in developing countries (by 100%), especially in the East and South-East Asia in the next 20 years presents an excellent opportunity for enhancing export of live goat/sheep and their meat from India. Responding to the market signals, the goat production system in India has been slowly moving from extensive to intensive system of management for commercial production. However, in the absence of any systematic study; there have been questions from the entrepreneurs, progressive farmers and even researchers on the economic viability and sustainability of commercial goat farming under intensive system.

India has enormous potential in this sector. Goat is highly integrated in rural economy but at the same time it is much neglected species among the livestock. It has good feed conversion efficiency and high prolificacy is the required trait from economic point of view. According to livestock census 2017 around 145 million goats are present in India. Every year 41% population slaughtered even than its population growth rate is 4-5%. Due to the negligence & unavailability of proper technology large percentage pregnant goats are also slaughtered. Thus one can imagine the growth potential of goat industry.

#### **Poor man's cow**

Goat has been described as a poor man's cow (or mini-cow) because of its immense contribution to the poor man's economy. They not only supply nutritious and easily digestible milk to their children but also regular source of additional income for poor and landless or marginal farmers.

Being small-sized animals, goats can easily be managed by women and children. Feeding, milking and care of goats does not require much equipment and hard work. Capital investment and feeding costs are also quite low. Four goats can be maintained as cheaply as one indigenous cow. Goats can be successfully reared in areas where fodder resources are limited and milch cattle do not thrive. Returns on capital of up to 50% and recovery of 70% of retail price are possible in goat farming. In rural areas, goat farming plays a vital role in providing gainful employment



#### **Broiler goat rearing a profitable enterprise**

Broiler goat production is highly suitable technology in areas where green fodder is not available (or) due to lack of grazing land. It is one of the techniques to improve the economy of rural farming community. Broiler goat rearing has been found to be highly remunerative compare to rearing other farm animals and it has been advocated as a better substitute of livelihood for the rural farmer.

#### **What are broiler goat kids?**

As far as broiler goat rearing is concerned, we don't have any specific breed for this purpose. The kids produced from goats (whatever breed available in your area) can be used for broiler goat rearing (both male as well as female kids).

#### **Housing**

Low cost housing should be constructed in such a way in a raised platform (about 1 meter height from ground level) by using bamboo/wooden

poles or 'pakka' building by establishing concrete pillars. Floor and side walls may be made of wooden material. Roof may be thatched with coconut leaves, grass or asbestos sheets. . Average floor space per kid is 0.75 to 1 sq. metre. Floor should have atleast 1 cm space between bamboos/wooden planks to allow passage of dung and urine down to the ground.



### **Selection of kids**

The goat kids about 15 days to 1 month old i.e before starting to eat green leaves and are having higher birth weight and not used for further breeding can be selected for broiler goat rearing. The selected kids will not be allowed to feed on green fodder/grazing green grasses in open spaces.

### **Method of rearing**

The selected kids are reared intensively by providing concentrate feed (goat feed) @ 5 g mixed with equal quantity of rice gruel ( broken boiled rice) initially i.e. at start (15-30 days). Then gradually increase the amount day by day as per feed intake (eg. 7g, 10 g, 15 g like that). Apart from these you can add, coconut cake, rice bran or ground cake with minimum level (1-2 g/day/kid to maximum of 150-200/day) Pure water also should be available at all times (24 hours).

Liver tonic (Tefroli/Livol etc.) and Fish oil should be given twice in a week @ 2.5 ml/animal per day initially and increase upto 5-10ml/kid/day. The young kids should be allowed for mother's milk twice or thrice in a day.

### **Goat feed**

Available in the market or you can also prepare own feed mix by using following feed ingredients.

### **Ingredients Parts**

Deoiled ground nut cake 12, Horse gram 30  
Wheat/maize/jowar (grain) 30, Rice polish/wheat bran 15, Dried unsalted fish 10, Mineral mixture 1.5, Common salt 1.5 and VitAB2D3 25 gms/100 kg of feed mixture.

### **Marketing**

In India goat meat is preferred by all. So marketing of broiler goat is not a major problem. Direct marketing is highly profitable. Involvement of middleman can reduce the price of animals. Broiler goat meat is soft and minimize goaty odour. Marketing should be done at the attainment of 25-30 kg or at the age of 13-14 months whichever is earlier.

### **Breeding of parent stock**

Parent stock should be allowed for mating by using good quality male (superior breed) or by using frozen semen at about 45 days postpartum (after delivery). Thereby the farmers can get continuous supply of goat kids for broiler goat production. Furthermore, the female goats produce more number of kids in their life time. Repeated mating by using same male should be avoided.

### **Synchronization of estrus**

In a large herd, synchronization of estrus by using PGF2 alpha injection and timely breeding by using good quality frozen semen or natural service by superior male will enhance not only conception rate but also the farmer can bring all the animals to deliver (kidding) at a specified period.

### **Advantages**

- No need to observe oestrus signs.
- Fixed time breeding at 72 hrs and 96 hrs following PGF2 alpha injection.
- Delivery of all mated or inseminated animals at a particular time.
- Highly useful for broiler goat rearing



- Management is easy.
- Reduced inter-kidding interval (in between the deliveries)

### Constraints in Commercial Goat Farming

Though commercial goat farming under intensive and semi-intensive systems of management has been picking up for the past couple of years, only less than one per cent of goat population in the country has come under such production system. There has been no organized effort to develop this sector and hence hardly any support system and the required infrastructure are available for encouraging the commercial goat farming in the country. There have been some efforts only by individual entrepreneurs to develop this enterprise besides R&D efforts of Central Institute for Research on Goats and a few NGOs. Of late, some state governments have started making efforts towards promoting goat rearing. In this backdrop, the commercial goat farmers do face a number of constraints, particularly during the initial phases of the goat-farming project.



- In the absence of proper standards and specially-designed vehicles for transporting the live goats, the officials in collusion with police harass the farmers under the pretence of welfare of the animals during transportation of the breeding stock from long distances.
- High mortality in goats due to PPR, diarrhoea, pneumonia, tetanus, etc. in the beginning of the project, is a major concern of the farmers. It

resulted even in closure of a number of farms in the beginning. High mortality in goats in the initial phase is mainly due to lack of knowledge about package of practices of improved goat farming, poor prophylaxis, non-availability of vaccines, etc., poor preparedness of the farmers, lack of personal attention of the entrepreneurs and poor access to veterinary doctor with experience of small ruminants. High mortality and poor growth in kids is a major constraints for 30 per cent farmers.

- Due to lack of knowledge, 70 per cent farmer has difficulty in identifying pure breed animals. Difficulty in getting good quality breeding animals is a major constraint. The best animals (particularly males) from the traditional flocks are sold for slaughtering to traders/ butchers. That resulted in scarcity of good quality breeding animals. The absence of organized efforts for breed improvement of goats has been compounding this problem. Since large goat flocks of different breeds under commercial production are only few, the entrepreneurs had to select the breeding animals from the available traditional flocks mostly through middlemen. Therefore it takes a long time to establish a good flock.
- Non-availability of vaccines, especially PPR, is another major constraint. Even the ET vaccine, which is being produced for decades, is not available in time in many states, including Jharkhand, U.P., Orissa, Chhattisgarh and Bihar. Non-availability of veterinary doctor 24\*7. The low cost complete feed is not available. All the commercial farmers require identification tags for their goats, however they do not have access to a cost effective tagging material.
- Another major constraint is realization of low prices for the surplus live goats. The trade of live goats, which is unorganized and is in the hands of a large number of middlemen, traders and butchers, does not favour goat farmers. The live goats are sold not on the basis of their body

weight in the livestock markets; this resulted in under-estimation of the value of live animals. Before building the reputation as a producer of quality breeding goats, the farmers get very low price for their animals. However, with the increased awareness and linkages, the commercial farmers have started insisting on deciding the price of their live goats on body weight basis. Poor access to good quality breeding animals and veterinary services are more severe constraints.

- The availability of institutional credit is relatively easy for large goat farming projects, but is a major constraint for the small entrepreneurs with projects of 50-100 goats and has limited capital for collateral security.



- Goat rearing, which was the economic activity of rural resource-poor people has attracted large and progressive farmers, businessman and industrialists due to its economic viability under intensive as well as semi-intensive systems of management for commercial production. The entry of resource-rich people, including poultry farmers, who have better access to technical knowledge, resources and markets, into this activity would help in realizing the potential of this enterprise. It would also encourage the aspirant commercial goat farmers who do not have access to grazing resources.

- The lack of good quality breeding stock being a major constraint in commercialization of goat production, the farms managed on scientific lines

should be encouraged to become the centres of production of superior quality breeding animals.

- Considering good economic potential in commercial goat production, some large industrial houses such as Hind Agro Industries (a major meat exporter of the country) are entering into goat farming business, especially for the export market. The big poultry farmers from Haryana, Punjab, Delhi, Madhya Pradesh and Maharashtra have also successfully started diversifying their business towards commercial goat farming. However, for availing the benefits of lucrative export market, food safety standards will have to be developed.

The commercial goat farmers can earn best profit by producing and marketing pure breed goats and festive sale during Eid. In the longrun, vertical and horizontal integrations would have to be evolved for achieving sustainability of commercial goat production and remaining competitive in the global market. Service centres will have to be established to provide technical knowledge, recommended inputs and market information. Small size modern slaughterhouses need to be established near the production centres (possibly in each development block) to maintain commercialization of goat production. The private sector may be encouraged to create such infrastructures through appropriate policy support and incentives. This would enable the farmers to enhance their productivity and reduce cost of their production. The goat farming is the enterprises which has potential to double the livestock agriculture farmers income before 2024, so Union govt as well as states govt should come up with schemes related to goat farming in the coming budget 2021 for coping the slow down of rural economy & providing the employment of crores of imgrant labourers who lost their job due to Pandemic COVID19.

□ □

All for Dogs, Patna

# Successful Organization of Webinars

**WEBINAR ON**  
**MYCOTOXINS AND GUT HEALTH IN POULTRY**

**Speaker**  
Dr. N. K. Mahajan  
Former Dean, LUVAS, Hisar  
Poultry Expert

**Speaker**  
Dr. Bhaskar Ganguly  
Sr. Scientist Clinical Research, Ayurved

Tuesday, 28<sup>th</sup> July 2020 Time: 4:00-5:00 PM

TRADITIONAL KNOWLEDGE  
MODERN RESEARCH

In the past two months, team Ayurved & ARF in collaboration with subject matter expert, arranged successful webinars, which were attended by Vets, Feedmillers, Scientist, Students & Farmers. The initiative was appreciated by all the participants. If you require more information on the subject & scientifically validated herbal solutions, feel free to write to us: [akalra@ayurved.com](mailto:akalra@ayurved.com)

**WEBINAR ON**  
**CULTIVATED QUALITY HERBS FOR VALUE CREATION**

**Speaker**  
Sh. M.J. Saxena  
Strategic Advisor  
Ayurved

**Speaker**  
Dr. N. B. Brindavanam  
Consultant, NRM  
Expert Bioresource Development

**Convener:** Dr. Anup Kalra

Friday, 21<sup>st</sup> August 2020 Time: 4:00-5:00 PM

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**WEBINAR ON**  
**AGP's FOR GROWTH & HEALTH OF POULTRY TOWARDS SAFE FOOD PRODUCTION**

**Speaker**  
Dr. PK Shukla  
Dean PGS, DUVASU, Mathura  
Former Joint Commissioner, Poultry, GOI

**Speaker**  
Dr. Bhaskar Ganguly  
Sr. Scientist Clinical Research, Ayurved

**Convener:** Dr. Anup Kalra

Tuesday, 25<sup>th</sup> August 2020 Time: 4:00-5:00 PM

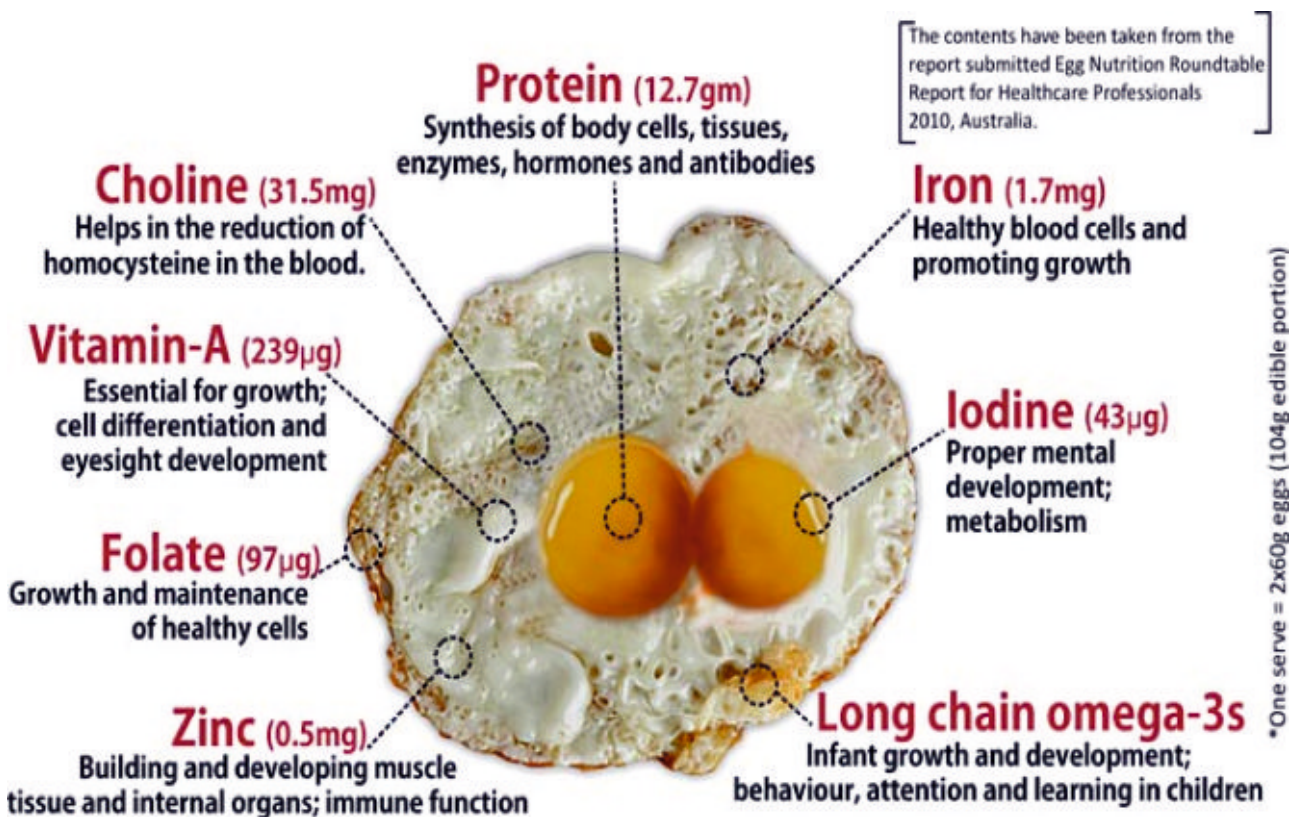
TRADITIONAL KNOWLEDGE  
MODERN RESEARCH



# Nutritive Value of Egg

In India food security, especially nutritious food is a major challenge. It is matter of fact that poverty is one of the causes for it. It is also true that obesity is now considered as a growing problem can be overcome by consuming a balance diet and that can be possible through the 'egg'.

the nutrients including fat are easily digested. The nutrients present in it are also essential for humans. Further eggs have a biological value of 93.7%. This value is 84.5% in milk, 76% in fish. An egg provides a unique and well-major supplementary source of iron for infants. Egg white is essential during rapid body growth.



All the nutritive values of eggs as indicated above are on One serve\* basis

An egg provides maximum quantity of nutrients essential for a human beings when compared with same quantities of milk, meat and fish as well as the quantities available in present market at the same price. As a result the biological value of an egg is highest amongst all other animal protein sources. All the nutrients of egg are easily digestible across all ages starting from baby to adult.

Egg is a complete and versatile food. Almost all

Hence, it is excellent food for young children and teenagers. It has low caloric value, which makes eggs valuable in many therapeutic diets. All the minerals are present as organic chelates and are highly bioavailable. Eggs are an easy, inexpensive and nutritious food to prepare and eat. Finally, availability, reasonable cost, ease of preparation, popular taste and low caloric value give eggs a primary advantage for human nutritional needs.

□ □

# Treatment/Handling the cases of Poisoning in Pets & Farm animals

**Poisoning is contact with a substance that results in toxicity. Symptoms vary, but certain common syndromes may suggest particular classes of poisons. Diagnosis is primarily clinical, but for some poisonings, blood and urine tests can help. Treatment is supportive for most poisonings; specific antidotes are necessary for a few.**

Vets encounter Various type of poisoning in the field . Animals die or perform poorly after accidentally ingesting these poisons. Gradual poisoning may also occur in areas with heavy industrial pollution.



Poisoning is contact with a substance that results in toxicity. Symptoms vary, but certain common syndromes may suggest particular classes of poisons. Diagnosis is primarily clinical, but for some poisonings, blood and urine tests can help. Treatment is supportive for most poisonings; specific antidotes are necessary for a few.

Before going in detail we must know some terminology related to it for better understanding.

**Toxicology :** It is the study of nature and effects of poisonous or toxic substances.

**Toxicity :** It is inherent capacity of substance to produce harmful effects.

**Poison :** It is any substance(liquid/solid/gas) that causes deleterious effects in a living organism.

**Venoms :** These are substances produced by reptiles for their defence mechanism. E.g. Snake Venom.

**Toxins :** These are the poisonous substances produced in animal tissues by the action of bacteria or waste products that are not recovered from body due to liver or kidney failure.

**Antidote :** These are the drugs or chemical agents that neutralize the effects of poison.

## **Sources of Poisoning**

There are two major sources of poisoning in animals—1) Natural Sources 2) Human oriented sources

### **1. Natural Sources:**

**1.1. Plants :** Ipomea carnea, Datura alba, Atropa belladonna, Strychnus nuxvomica, Young shoots of sorghum, Nitrate rich plants

**1.2. Animals :** Poisonous snake bite (Cobra, Krait, Russel viper and Rattle snake). Scorpion bite, Toad toxin, Tick toxins and Spider venom.

**1.3. Minerals or metals :** Arsenic, Lead, Mercury, Selenium, Fluoride.

### **2.) Human oriented sources:**

2.1 Accidental causes a) **Fertilizers:** Urea, phosphate or Nitrate fertilizers.

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**Dr.Jitendra Singh**

**b) Insecticides:** Organophosphates, Organochlorines, Carbamates, Pyrethroids.

**c) Rodenticides:** Zinc phosphide.

**d) Industrial effluents:** Lead, Fluorine, Cyanide, Mercury, Nitrate. **e) Radiation hazards**

- 2.2 Malicious poisoning Unlawful discriminatory killing of animals by administering poisons e.g. Zinc phosphide, Strychnine, Abrus etc.

### Classification of Poisoning

The classification of poison on the basis of its effect on body is as follows:

- 1.) Poisons causing respiratory insufficiency (anoxia) by
  - 1.1 Hindering oxygen uptake from pulmonary alveoli e.g. Petroleum products, Nitrous oxide, Sulfur oxide.
  - 1.2 Hindering oxygen transport to tissues e.g. Nitrites/Nitrates – Formation of Methaemoglobin.
  - 1.3 Inhibiting oxygen utilization by tissue cells e.g. HCN/Cyanide – Inhibiting enzyme cytochrome oxidase.
- 2) Poisons causing nervous stimulation or depression by
  - 2.1 Directly damaging the brain or spinal cord e.g. Salt, Organomercurials.
  - 2.2 Acting on known receptor sites e.g. Organophosphates and Carbamate pesticides – inhibits enzyme acetyl cholinesterase.
  - 2.3 Causing nervous stimulation or depression by unknown mechanism e.g. Chlorinated hydrocarbons, Lead, Acute Fluoride poisoning.
- 3) Poisons causing severe liver damage e.g. Aflatoxins and other mold toxins.
- 4) Poisons causing severe kidney damage e.g. Mold toxins, Carbamates.
- 5) Poisons causing severe colic
  - 5.1 Direct corrosives/irritants e.g. Chemicals.

5.2 Metabolic poisons e.g. Arsenic, Urea.

6) Poisons causing bone, tooth, hoof and hair abnormalities e.g. Fluorosis, Selenium toxicosis

7) Poisons causing lesions on skin' e.g. Corrosives (acid/alkalies), Mold toxins, Photosensitizing plants like Lantana Camara, Tribulus species.



### Types of Toxicity

**1. Acute toxicity:** It results from exposure of animals to high dose of a compound usually a single exposure or exposure over a short period. The animals exhibit immediate onset of severe toxic symptoms and usually die suddenly.

**2. Subacute toxicity:** Slow development of toxicity on repeated exposure to subtoxic doses of a compound over a period up to 90 days.

**3. Chronic toxicity:** It results from exposure to still less doses than in subacute toxicity over a period of 6 months or more.

### Diagnosis of Poisoning;

**1. Vomiting, Diarrhoea, Abdominal pains.-** Zinc, Copper, Arsenic, Iron salts. Acids, Alkalies, Phenols, Turpentine.

**2. Convulsions-** Ammonia salts, Cyanides, Nitrates and Nitrites, Phenol, Strychnine.

**3. Coma-** Bromides, Carbon monoxide, Nicotine, Alcohol.

**4. Muscular inco-ordination** Ammonium salts, Boric Acid, Cyanide, Nicotine, Nitrates,



Oxalates.

**5. Dilatation of Pupil**-Nicotine, Water hemlock, Hyoscine.

**6. Contraction of Pupils**-Opium derivatives.

**7. Slow respiration**-Atropin, Hypnotics

**8. Rapid Respiration**-Ammonium salts, Nicotin, Urea.

**9. Dyspnoea**-Carbon monoxide, Cyanides, Sulphur Dioxide



**10. Lameness**-Flourine, Ergot, Insecticides.

### **General Principles of Treatment of Poisoning**

Depending upon tentative, presumptive or confirmative diagnosis and health status of poisoned animal treatment is given. The treatment is broadly divided into five categories.

#### **1) General Procedures**

1.1 Removal of source of poison :  
shifting animal to fresh feed and water.

#### **1.2 Removal of unabsorbed toxicant from GI tract and skin**

a) If poison is ingested then it can be removed by using- Gastric lavage with neutralizing agent or water. Emetics : e.g. 30-60 gm of common salt in a glassful warm water. Purgatives: e.g. Saline purgatives are beneficial for removal of non-irritant poisons. E.g. Magnesium Sulphate @ 250-500 gm orally in large animals. Oily purgatives are preferred in case of irritant poisons.

b) If the source of poisoning is through eye or skin

then-Wash the skin thoroughly with lot of water (Avoid scrubbing) Wash the eyes with water or normal saline.

#### **2) Removal of absorbed toxin-**

Intensive fluid therapy (Inj. Dextrose 5%) to promote excretion of toxin.

#### **3) Common Antidotal Therapy**

This comprises administration of neutralizing or detoxifying agents.

3.1 Use of universal antidote (2 parts activated charcoal+1 part Tannic acid+1 part Magnesium oxide). Dose: 250 gm for large animals, 15-30 gm for small animals.

3.2 Administration of egg white (from 6-8 eggs) and milk (500 ml) orally to neutralize heavy metals.

3.3 Use of 15-20 drops of tr. Iodine in 100-125 ml of drinking water to precipitate alkaloids, strychnine, mercury and lead.

3.4 Use of 5% acetic acid or vinegar or lemon juice to dilute alkali poisons.

3.5 Use of lime water, powdered chalk to dilute acid poisons.

#### **4) Specific antidotal Therapy**

It is the use of exact antidote against certain poisoning on its confirmation. Poisoning Specific Antidote HCN poisoning Sodium nitrite and sodium thiosulphate. Nitrate poisoning Methylene blue Organophosphate poisoning Atropine sulphate Lead poisoning Ca disodium EDTA

#### **5) Symptomatic Treatment**

It comprises the treatment based on symptoms

5.1 Maintenance of clear air way.

5.2 Use of respiratory stimulants. e.g. inj Nikethamide @ 7-11 mg/kg IM, IV.

5.3 Control of convulsions by using sedatives. e.g. inj Diazepam @ 0.5-1 mg/kg IM, IV.

5.4 Giving CNS stimulants in case of severe depression. e.g. Caffeine 0.5 g IV (Dog 0.1-1.0 g SC)

5.5 In case of shock, protection of the animal from cold and use of corticosteroids / adrenaline and fluid therapy.

5.6 Intensive fluid therapy to counteract dehydration owing to diarrhea or vomition.

5.7 Oral administration of demulcents (mixture of egg, sugar and milk or rice gruel) to alleviate irritation caused by poisons.

**6) Supportive Treatment This is given during and after recovery from poisoning.**

6.1 Liver tonics to promote appetite and liver function.

6.2 Fluids and electrolytes to compensate water and electrolyte losses.

6.3 Dextrose to compensate lost energy.

6.4 Antibiotics to check secondary bacterial Uinfections

**Common Antidotes**

Any poison remaining in the stomach should be neutralized as far as possible by administration of suitable chemical antidotes.

**1. Universal oral Antidote:-** Preparation –

(a) Activated Charcoal –2 Parts

(b) Magnesium oxide —2 Parts



(c) Tannic acid –1 Part

(d) Kaoline –1 Part.

Doses :- 1. Cattle, Horses -250 gm–2 to 3 times a day

2. Calves –30 gram–do

3. Sheep, Goat, Pigs.—15 gram—do



4 Dogs- 30 gms, with 300 ml. water well shaken. Mixture of this antidote should be given in three parts of a day.

N.B.: -Antidote given should be followed by saline purgatives 450 gms., mag. sulph. in cattle.

**2. Tannic Acid ;-** In the form of solution in water, Tannic acid effectively precipitates aluminium, lead, silver and the alkaloids (Useless against arsenic trioxide.)

**3. Iodine solution** (15 drops of the tincture in half a glass of water) effective for precipitation of lead, mercury, silver and certain alkaloides of quinine and strychnine.

**4. Acid neutralization.-** By giving lime water, mag. carbonate.

**5. Alkali neutralization.-** Vinegar (5 per cent acetic acid), lemonjuice, citric acid 5-10 per cent solution, Potassium permanganate solution has some value in oxidation of phosphorus. (Dilute solution, of  $KMnO_4$  1 in 2000).

6. Milk and egg white neutralize heavy metals and phenols.

**7. Demulcents.-** Mixture of eggs, sugar and milk to linseed-tea or oatmeal~el allays irritation caused by poison.

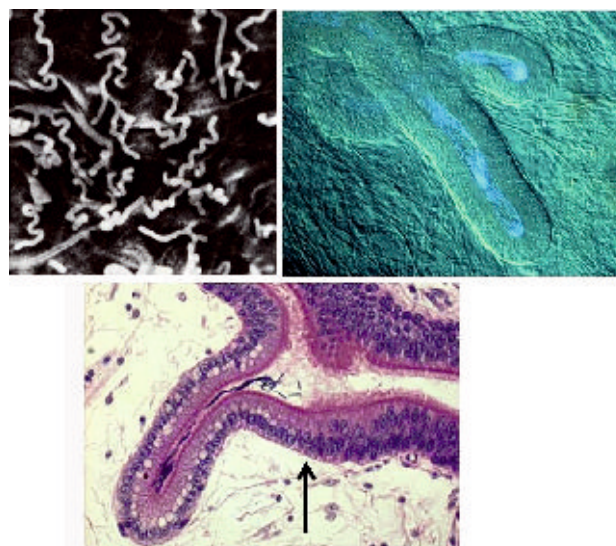
VO, Kampur Dehat, UP

# Artificial Insemination in Poultry

Artificial insemination (AI) is the most widely used reproductive technology in the livestock industry. Its adoption in poultry species has increased in popularity, especially in the western countries for research and commercial purposes. AI in chicken requires one to understand the basic anatomy and physiology of the hen's and the cock's reproductive tract. AI involves the deposition of semen into female reproductive tract manually.



It starts with the collection of the semen from the male and its evaluation in terms of motility, viability and concentration followed by its deposition into female reproductive tract. One must be technically competent with the semen collection and deposition procedures in order to achieve effectiveness in producing fertilized eggs. Males can produce semen as early as 12 weeks of age, depending upon body size and lighting programme. However, sperm from such roosters is rarely viable and effective; maturity does not develop until birds are around a



minimum of 18 weeks of age.

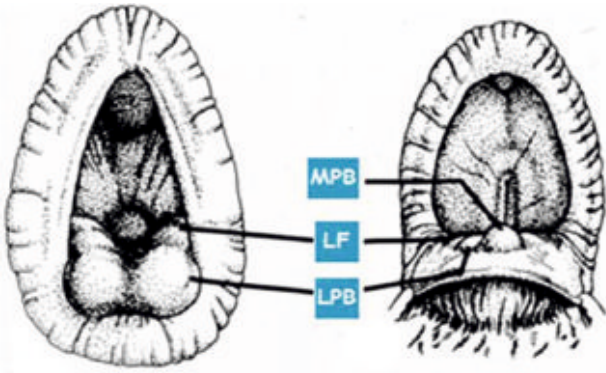
So the cocks from 22 or 24 weeks of age are used for semen collection. Semen consists of spermatozoa and seminal plasma. Fowl semen is generally highly concentrated (3 to 8 billion spermatozoa per ml for broiler fowl). The natural colour of poultry semen is white or pearly white. Heavy breed male can produce 0.75 to 1 ml semen and light breed male can produce 0.4 to 0.6 ml of semen. Chicken semen begin to lose fertilizing ability when stored >1 hour. Liquid cold (4°C) storage of chicken semen can be used to transport semen and maintain spermatozoa viability for ~6–12 hours. Semen is collected 4–6 times in a week. Although every day semen collection will not change the fertilizing capacity but the volume of semen will be low. Inseminations should be carried out on two consecutive days at the first week and then once each week thereafter while fertile eggs are required.

As poultry semen has a very limited life, insemination of hens should be complete within one hour of semen collection. It is a good idea to carry out the operation at the same time each day,

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Soni Kumari<sup>1</sup>, Priyanka Kumari<sup>2</sup>, Archita Singh<sup>3</sup>





the best time being between 2.00 and 4.00 pm. The reason for this is that during the morning, most hens have an egg in the oviduct, thus obstructing the free passage of semen to the ovary. Another point in favour of inseminating the hens in the afternoon is that it is generally cooler and the hens are less likely to be affected by heat, particularly in late spring.

#### Equipment needed for AI

Small glass funnel with stem plugged with wax, inseminating syringe, wide mouthed glass vial, small pyrex semen cup, large flask to hold water at 180°C to 200°C range for short time holding of semen.

#### Semen collection

The first step in AI program is manual collection (milking) of the semen. A team of two members should be involved in semen collection, one for restraining the male and the other for collecting semen. The bird should be held in a horizontal position by a person at a height convenient to the operator who is attempting to collect the semen. To collect semen the operator should place the thumb and index finger of the left hand on either side of the cloaca and massage gently. By his right hand the operator should hold a collecting funnel and with the thumb and index finger massage the soft part of abdomen below the pelvic bones. Massage should be rapid and continuous until the cock protrudes the papilla from the cloaca.

Once the papilla is fully protruded, the previously positioned thumb and index finger of the left

hand are used to squeeze out the semen in to the collecting funnel. Avoid contamination of semen with faeces and feather.

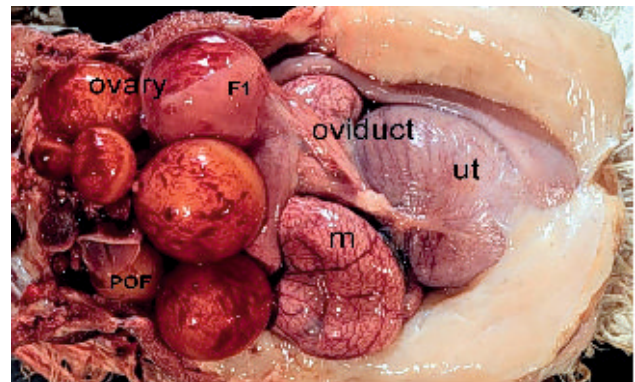
Semen should be evaluated after collection. Normal colour of the semen is pearly white or cream coloured. Yellow semen and semen contaminated with blood, urates, faeces or other debris should be avoided. Semen should not be allowed to come in contact with water. If debris or contaminants are observed in pooled semen, carefully aspirate contaminants from the sample before mixing with additional diluent with the semen. Diluted semen should be kept in a cooler or refrigerator (3 to 12°C) to cool down. Chicken semen begins to lose fertilizing ability when stored >1 hr. Liquid cold (4°C) storage semen can be used to transport semen and maintain spermatozoal viability for ~6–12 hr. Chicken semen may be frozen, but reduced fertility limits usage to special breeding projects.

#### Insemination

All equipment to be used for insemination should be thoroughly cleaned and dried before use. Insemination must be carried out when majority of the birds have completed laying since a hard shelled egg in the lower end of the oviduct obstructs insemination and lowers fertility.

In practice, inseminating chicken after 3 pm obtained better results. It is difficult to inseminate non-laying hens. Usually insemination is done when the flock reaches 25% egg production. Hens are inseminated twice during first week, then at weekly intervals.

Under experimental conditions, fertility levels of

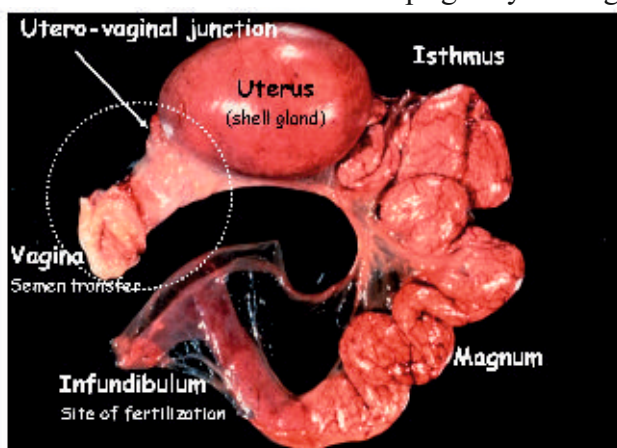


90% have been obtained in hens inseminated at 3-day intervals with 400–500 million frozen-thawed chicken spermatozoa. In chickens, the number of diluted semen inseminated will range from ~100–200 million sperm cells per insemination. In chickens, because of the lower spermatozoon concentration and shorter duration of fertility, 0.05 mL of undiluted pooled semen, at intervals of 7 days, is required.

The hen's squatting behavior indicates receptivity and the time for the first insemination. Fertility tends to decrease later in the season; therefore, it may be justified to inseminate more frequently or use more cells per insemination dose as hens age.

### Procedure

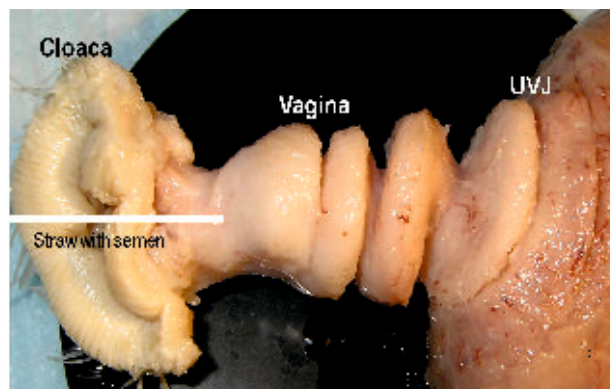
For insemination hen is held upright by the legs



with the left hand down and tail tucked back and against the operator chest. The thumb of the right hand is placed against the upper lip of the vent then with a rounding motion abdomen muscles are pressed, particularly on the left side.

Do not squeeze with fingers but apply pressure evenly with the palm of the hand. This causes the cloaca to evert and the oviduct to protrude, the second operator inserts the syringe or plastic straw ~1 inch (2.5 cm) into the oviduct and the appropriate amount of semen is deposited at the junction of vagina and uterus.

As the semen is expelled by the inseminator, pressure around the vent is released, which assists



the hen in retaining sperm in the vagina or oviduct.

### Advantages

Some of the advantages of artificial insemination in the poultry are:

1. Normally one cockerel can be mated to six to ten hens. With artificial insemination this mating ratio could be increased fourfold. This way one male of high genetic merit for a particular trait of interest can be used to serve more females.
2. Older males having outstanding performance can be used for several generations whereas under natural mating their useful life is limited.
3. Valuable male birds having the leg injury can still be used for artificial insemination.
4. When there is poor fertility caused by preferential mating, it can be eliminated.
5. Although cross breeding is very successful under natural conditions, but sometimes there is a kind of colour discrimination as some hens will not mate with a male of a different colour unless they have been reared together. In such condition AI helps in successful cross breeding.
6. AI allows for incompatible individuals to mate; incompatibility arises when males are heavier than females and under natural mating this may result to injury of the females.
7. AI allows for better use of the cage feeding system in hatchery operations, especially when dealing with large number of females that are required to lay fertilized eggs. □ □

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# Problems associated with Poultry in the Rainy Season

The term “poultry” includes various species of domesticated birds. The poultry business is one of the most rapidly growing business globally. Despite all these mileages, the poultry business is seriously tormented by extreme seasonal conditions. Like any other season, the rainy season can also be a cause of stress to poultry. The rainy season may fetch various diseases for birds. This extreme weather condition may cause immuno-suppression that can drastically affect the bird’s productivity. The main problem of the rainy season is not only because of low temperature and high humidity but due to the dripping water from many sources that may bring various parasites and pathogens.

## Prevalence of major poultry diseases encountered during rainy season

### Fowl cholera

This disease is caused by bacteria called *Pasteurella multocida*. It has symptoms like loss of appetite, inflammation, colour changing in combs and wattles, drop in egg production. Sometimes birds found dead without even noticing any symptoms due to poultry farmer’s negligence.

### Fowl pox

This disease is caused by pox virus. It is a contagious disease and can be deadly. Mosquitoes and other blood-sucking insects are the main agents and the rainy season is appropriate weather for them to multiply. The clinical signs of this disease include lesions on the wattle, face, comb, and sometimes on the legs. In



severe cases, pox virus can cause lesions in the throat that can make the chicken suffocate.

### Infectious Bursal Disease (Gumboro)

It is caused by birna virus. It affects immature birds (3 to 18 weeks old). Majorly, this disease affects the bursal component of the immune system of chicken that may lead to immuno-suppression. Signs of the disease can include a rapid drop in feed and water consumption, mucoid (slimy) diarrhoea with soiled vent feathers, inflammation of the cloaca, ruffled feathers, listless chicks with unsteady gait or sitting in hunched position, picking at own vent and sleeping with beak touching the floor. inflammation of the cloaca.

### Prevention

Vaccination, including passive protection via breeders, vaccination of progeny depending on

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1 Dr. Gunjan Sharma, 2 Dr. Richa Tiwari  
and Dr. G. C. Negi<sup>3</sup>



virulence and age of challenge. In most countries breeders are immunised with a live vaccine at 6-8 weeks of age and then re-vaccinated with an oil-based inactivated vaccine at 18 weeks. A strong immunity follows field challenge. Immunity after a live vaccine can be poor if maternal antibody was still high at the time of vaccination. When outbreaks do occur, biosecurity measures may be helpful in limiting the spread between sites, and tracing of contacts may indicate sites on which a more robust vaccination programme is indicated



**Escherichia coli infection and salmonellosis:** Immunosuppression may lead to other secondary infections, like Escherichia coli and salmonella. These infections have symptoms like difficulty in breathing, appetite loss, depression, umbilical stump infection, and poor growth rate.

**E. coli infections can affect various regions like:**

**Aspergillosis:** When the feed and litter get damp due to rainy water, poultry can easily catch the infection of fungus-like Aspergillosis. The symptoms of this infection include lesions that look like green and yellow nodules which fill the lungs, causing respiratory discomfort. This

infection has incubation period of 2-5 days. Morbidity is usually low, but may be as high as 12% and mortality among young birds is 5-50%. Transmission is by inhalation exposure to an environment with a high spore count.

**Coccidiosis:** This is caused by a protozoan parasite of the genus Eimeria. the symptoms of this disease are mucus-like or bloody diarrhoea, dehydration, anaemia, listlessness, ruffled feathers, stunted growth, death, and sometimes drop in egg production.

**Other physiological factors affecting chicken:**

**Decrease egg production:** Chickens usually produce eggs in the daylight. During the rainy season, the daylight will be shortened or less and this causes a decrease in egg production.

**Mudballs in chicken toes:** When chicken walk regularly on this wet litter due to rain, the soil and manure get stuck in chicken's feet and create mudballs. If you don't clean up your chicken's feet regularly, then this mudball gets bigger by time and may break your chicken's toes.

**Management during the rainy season:** Various measures should be followed by a poultry farmer to maintain poultry productivity at its best during the rainy season.

**Provide the heater/fluorescence light:** During the rainy season, the temperature is low. hence, to make chicken's body warm and encourage egg production provision of heater/fluorescence light should be there in poultry farm since this



artificial light can act the same as the daylight.

**Put oil/fat in the chicken's feed:** During the rainy season, chicken tends to eat more. Hence, to reduce the cost of their feed, some oil or fat can be added into their feeds. These oil and fats will provide higher energy and reduce feed production costs.

**Prepare more dry padding:** During the rainy season, humidity level increases. The wood dust that is used as bedding can get damp easily. Hence, there is a need to prepare more dry wood dust and extra bedding in the chicken coop to make them dry. Along with this, chicken's bedding should be changed more often than usual.

**De-wormers administration:** During the rainy season, leaking water from various sources can deteriorate chicken's health as it might bring many worms and parasites. Hence, de-wormers to be given to avoid infection with intestinal worms. Effective de-wormer can be piperazine that can be given once in 2 or 3 months.



Construct the roof overhang over the entrance and sides of pens: During the rainy season, to ensure that the water doesn't get leak out into the



chicken's coop, some more roof overhang can be made over the entrance and sides of pens. This construction avoids the water leaking, while air circulates well through the ventilator.

**Vaccination before the rainy season:** We all know that "prevention is better than cure". Hence, before the arrival of the rainy season, your chicken must be vaccinated.

**Provision of antibiotics in the farm:** Along with this, antibiotics should also be given routinely to poultry to boost up their immune system and for treatment purpose if any chicken is found to be ill.

### Conclusion

There are certain climatic period poultry farmers must be aware of and how to maintain the best productivity level of their farm during this period is the key to the success of the poultry business; one of these periods is the rainy season. Hence, as a poultry farmer, it is very important to learn how to operate a poultry farm during the rainy season.

□ □

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# Expert's advice



Dr. P.K. Srivastava  
Senior Veterinarian

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

**Vikas Srivastava, Gorakhpur**

**A.** Infertility is mainly caused by following reasons;

- a) Nutritional imbalance
- b) Reproductive tract Infections
- c) Congenital abnormalities
- d) Hormonal imbalance
- e) Management errors

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

**Jeetu Soni, Rajasthan**

**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.

**Q. What is the average age of 1st calving in cattle in Indian conditions?**

**Promod Gupta, Allahabad**

**A.** The average age of first calving in cows in Indian conditions is around 36-44 months.

**Q. I have come to know about Hydroponic Fodder in Animal feeding. Can you give me some details?**

**Kewal Singh, Jamshedpur**

**A.** Hydroponic Green Feed is a special type of fodder which provides green seeds and roots. This is rich in protein and minerals as compared to conventional fodder. This technology does not require any soil and very little water. The experiments have proved that leading of Hydroponic Green Feed has been found to be useful in animal health and milk production.

**Q. I was told by Gaushala owner the cow dung can be used effectively for production of cooking gas. If true please suggest.**

**Shaid Kapoor, Ghaziabad**

**A.** Cow-dung can be effectively used for production of biogas. This biogas which majorly contains methane can be used as cooking gas and as source of power. The bi-product of biogas is known as slurry, which is very good nutrient source for improving the fertility of soil.

# Bhumi Amla

## *Phyllanthus amarus*

**B**humi Amla (*Phyllanthus amarus*) is a widespread tropical plant commonly found in coastal areas, known by the common names gale of the wind, stonebreaker or seed-under-leaf. It is a relative of the spurges, belonging to the genus *Phyllanthus* of the family *Phyllanthaceae*.

It is an annual herb which grows 50–70 cm (20–28 in) tall and bears ascending herbaceous branches. The bark is smooth and light green. Flowers are whitish-green in color and are small elliptic-oblong shaped. It is rich in the source of vitamin C. The fruits are tiny, smooth capsules containing seeds.

The whole plant is useful since its every part shows potency and good action. The plant has long been used in Brazil as an herbal remedy for kidney stones. Research among sufferers of kidney stones has shown that it may reduce urinary calcium, a contributing factor to stone growth..



### **Distribution**

The plant is distributed throughout India mainly in tropical and sub-tropical parts of the country.

### **Climate & Soil**

The plant grows in tropical and subtropical climate over well drained sandy-loam soil for its luxurious growth.

Temperature: - 28-30 Degree

Rainfall: - 25-30 cm.

Sowing temperature: - 30-33 degree.

Harvesting temperature: - 20-23 degree.

### **Propagation material**

It propagate through freshly harvested seeds.

### **Agro-Technique**

#### **Nursery Technique**

**Raising Propagules:** Seeds are sown in raised nursery beds during June after rains and seedlings later transplanted on ridges in well laid out plots.

**Seed Rate and Pre-treatment:** About 1 kg seed may be needed for raising seedlings for planting on one hectare of area. No specific pre-treatment of seed is recommended.

#### **Planting in the field**

#### **Land Preparation and Fertilizer Application:**

The soil should be ploughed, harrowed and plucked and made into a fine tilth. 20 tonnes of FYM is applied during land preparation. For nursery beds, farm yard manure at the rate of 10 t/ha is mixed in the soil along with 100 gm Azospirillum+100 gm Phosphobacteria+100 gm Trichoderma as basal medium. In main field 25-30 t/ha of FYM is applied as a basal medium+2.5 kg Azospirillum+2.5 kg Phosphobacteria is given before transplantation.

#### **Transplanting and Optimum Spacing:**

15-20 days old seedlings of 8-10 cm height are transplanted at 30 cm distance in rows in the field immediately after the first monsoon shower. If there is no rain; the field should be irrigated immediately after transplantation. For one-hectare area about 4.0 lacs seedlings are needed at an optimum spacing of 25X25 cm.

**Weeding:** The crop needs hand weeding at 30 and 60 days' interval after planting.

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Ranjan Kumar Rakesh

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**Irrigation:** Irrigation is required during dry season if monsoon rains is scanty. The frequency of irrigation depends on the moisture content of soil.

**Disease and Pest Control:** Powdery mildew disease occurs during rainy season. This is controlled by spraying bio pesticides like Azadirachtin, Trichoderma viridie, Pseudomonas cholotorapsis etc.

### Harvest management

**Crop Maturity and Harvesting:** The crop matures in 80-90 days when it should be harvested



it has maximum active chemical ingredients at fruiting. However, seeds collection is done after 110-120 days old crop. Generally harvesting is

done in the month of September when the rainy season is just completed.

**Post-harvest Management:** Whole plant is pulled manually and shade dried. The dried herb is stored in polythene lined gunny bags at cool, well ventilated go downs.

**Yield and Cost of Cultivation:** A yield of 2 to 3 t/ha of dry herb is obtained.

### Post-Harvest

After harvesting the leaves are air dried. Then they are packed in airtight bags to increase self-life

### Chemical constituents

Mainly alkaloids, in the form of lignins, like phyllanthin and hypophyllanthin. The total phyllanthin lignans range between 1 to 1.2% in the dry herb.

### Uses of Plant

- The plant is widely used to tone-up sluggish liver and also given in chronic liver condition and jaundice.
- In Unani medicine, the plant is used in jaundice as de obstruent, diuretic, cooling and astringent.
- In recent studies, the herb and its root have exhibited antiviral actions on Hepatitis-B. □□

## The Longest Living Vet, Capt Rattan Singh Dayal turned 100 years

Captain (Dr) Rattan Singh Dayal, the longest living Vet has recently celebrated his 100th Birthday. Captain Rattan Singh was born on July 30, 1920, and did his LVP( Hons) from Veterinary College Lahore (now in Pakistan) in 1941. His first posting as a Veterinary Officer was at Gurgaon. In 1942 he joined Indian Army Vet Corps at the peak of World War II and through 1942 to 1946...served at various foreign countries such as Egypt, Palestine, Trans-Jordan( named like that time) Syria, Sicily, Italy and Greece to name few. He was decorated with Indian Distinguished Services Medal. Incidentally, his younger brother Lt Gen Ranjit Singh was also a decorated Army Officer who went on to become Lt Governor of Puducherry and Andaman and Nicobar before his death in 2012. After his return to India Captain Rattan Singh was posted

at Military Dairy Farm Jalandhar. Following discharge from the army, he joined the Civil veterinary department and served in various administrative capacities. He took advanced training at the UK in animal nutrition and farm management and in Scotland and Wales for sheep breeding. Captain Rattan Singh also served as Superintendent of Govt Livestock Farm Hisar in 1959. On the reorganisation of Punjab, he was promoted as the First Director Animal Husbandry Haryana. He was the person who established Indo-Australian sheep Breeding and Indo-Australian cattle breeding projects at Hisar which now work as different Sectors. He also served as Milk Commissioner.







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# Impact of COVID19 on Indian Poultry and Dairy Sector and Role of Vets

Due to efforts by Government and private sector, it started picking up in second week of March, but again went down during lockdown period due to lack of supply chain and logistics issues. Only 5% of chicken are processed and sold in chilled or frozen form. Rest is sold as live chicken. There is need to do active promotion of chicken and egg consumption in India. There is need to increase share of processed chicken. There are many misconception about eggs and chicken among consumers. Vets can play important role in growth of poultry sector in short term and long term period.

Next 18-24 months will be challenging not only for global economy but also for Indian farmers. Animal husbandry activities brings daily and regular income in life of farmers. It will take time to revive consumption of animal proteins in HORECA segments. So demand for animal proteins like milk/products, chicken, mutton, eggs and fish will be lower at least by 30-50% in short term.



Vet is the most important person in life of Indian farmers. He will have to play role of three people –Veterinarian, Extension worker and Trainer (VET) for betterment of animal husbandry sector. We will have to keep our animals healthy as usual. We will have to help our farmers to

improve productivity per animal and to reduce cost of production of animal proteins. During lockdown, only those products could reach urban kitchen where supply chain was in place. Farmers needs to be motivated to form Farmer Producer Companies and to build product wise supply chains which includes procurement of animal proteins, primary or secondary processing to increase shelf life and to do value addition, branding and marketing, logistics etc. so that consumers get product of right quality at right price. Farmers should get maximum share out of rupee spent by consumers.

Many vets are already working with poultry sector. Although poultry production is at par with international level and India is number three in egg production and number four in broiler production in the world, it suffered most before and during lockdown period. False messages on social media brought chicken consumption to almost 10% of normal during February 2020. Due to efforts by Government and private sector, it started picking up in second week of March, but again went down during lockdown period due to lack of supply chain and logistics issues.

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Dr. Dinesh T. Bhosale

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semen, use of ET and IVF. Cross breeding will continue to increase productivity of our nondescript animals. Vets should start feed mills to manufacture and sell balanced cattle feeds. There is need to promote goat farming and marketing of goat products. It will open new avenue for landless and marginal farmers.

Vets should also spend time and money on skill development. They can take help of veterinary colleges, associations like CLFMA of India, PFI and IDA, NDDDB, ICAR Institutes and private companies. Both vets and farmers needs to learn many things from consumers. There is need to promote animal protein consumption in rural India as well. Presently production is in rural area



whereas most of the consumption happens in Urban India.

Young Vets should start startups instead of looking for jobs. Startup India and many private venture capital companies are helping startups in animal husbandry sector. Institutes like NAARM, IVRI and NDRI have started incubation centers for startups. Few examples of startups in animal husbandry sector are Teplu, Shekru, Zoofresh, Humpy A2, Sumbran goat farm, powergotha, Milk Mantra, etc.

Vets should make list of success stories in different fields of animal husbandry. He/she should have knowledge about government schemes and should do handholding of farmers to

get maximum benefit out of it. This will help weaker section of the society to do profitable animal agriculture.

FSSAI has brought out standards for milk and milk products last year. They want to control antibiotic residues and mycotoxins (eg. Aflatoxin) in milk. There is need to promote use of herbal plants to treat common diseases. Farmers should be educated not to sell milk of sick cows where antibiotics are used. Conventional ways of training and social media should be used to reach large number of farmers. Every farmer has smart phone now a days and during lockdown they have learnt how to use social media like youtube, whatsApp and Facebook, etc. Vets should help NGOs working with farmers to improve profitability and productivity of animal husbandry sector. There should be trust among all stakeholders who intends to work with farmers.

Zoonotic diseases will play very important role in coming days while selling animal proteins. Farmers and consumers needs to be educated about it. Vets are best people to write and implement various policies of state and central governments. Consumption of animal protein will help to increase immunity of Indian population. There is wrong propaganda by various animal welfare organizations which may affect consumption of animal protein and thereafter profitability of farmers. Vets should educate all stakeholders about it. Vets should spare some time to write articles and print it in various media to reach farmers.

So apart from regular duties, vets should spend at least 10 hours every week to help our farmers in next 18-24 months to fight bad impact of COVID19 on animal husbandry sector. □□

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