

# AVN

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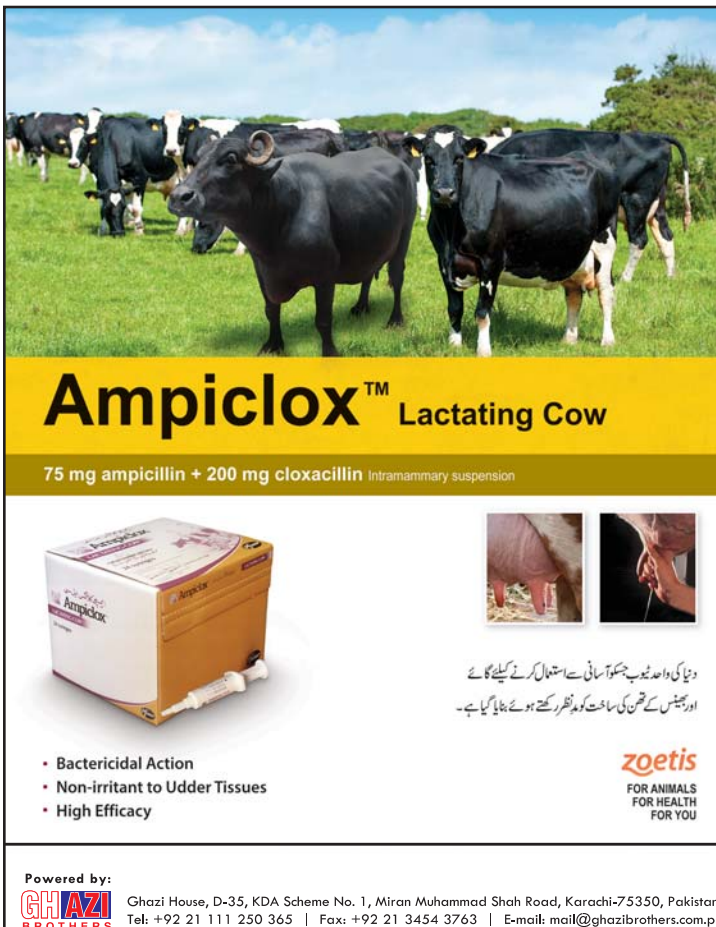


## Lumpy Skin Disease affects over 28,000 cattle; meat, milk safe for human consumption




### AVN Report

**KARACHI** - As many as 250 animals have died due to the Lumpy Skin Disease (LSD) that has infected over 28,000 animals, across Sindh, according to the latest reports. The seminar held at the Dow University of Health Sciences (DUHS) Ojha Campus addressed misconceptions regarding the disease. The event was organised by the Association of Molecular and Microbial Sciences. Livestock Director-General Dr Nazir Hussain Kalhoro said. "Except for five districts, lumpy skin disease has spread to all the districts of Sindh, but it is only infecting cows while other livestock including buffaloes, goats, sheep and camels have not contracted the disease. Infected cows stop producing milk while we consume buffaloes' milk, which is safe and does not carry the disease or virus." He added that according to data till March 23, 2022, around 28,857 cows were infected with the LSD in Sindh, and about 250 cows died. "On social media, lumpy skin disease is being described as an infectious disease or a deadly disease to humans, which is not true," he explained. Earlier the livestock secretary said that the lumpy skin disease had appeared in animals in Punjab and Sindh.

Continued on Page 14



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# Pakistan's Fatima Group signs \$1 billion deals with Chinese, Saudi Agri stakeholders

## AVN Report

**DUBAI** - Fatima Group, one of the fastest-growing industrial conglomerates in Pakistan, signed two MoUs of over \$1 billion with two key global agriculture stakeholders - China Machinery Engineering Company (CMEC) from China and Sarh Attaqnia Co. (SAC) from the Kingdom of Saudi Arabia.

A formal signing of the business partnership was held at the Pakistan Pavilion in Agriculture Week at Expo 2020 Dubai. Fatima Group is leading the initiative of transforming Pakistan's agriculture to serve as the world's food basket. They have been known as Pakistan's fastest-growing industrial conglomerate with more than \$1 billion in revenue in industries like fertilizers, energy, textiles, sugar, cement, and venture capital investments.

Chairman of Fatima Group and

CEO of Fatima Fertilizer Company Limited, Mian Fawad Ahmed Mukhtar, said.

As chairman of a leading Pakistani conglomerate, it is my vision to

Pakistan's food security but the entire region's. We are grateful to our Chinese and Saudi counterparts who have put their trust and faith in us. I am hopeful



bring modern precision farming to Pakistan. We as a country are blessed with immense potential, and I strongly believe that with the right partners, we can create a big difference not just for

that this landmark will lead to many more such partnerships and investment opportunities for the future.

China's CMEC as a technology partner will help adapt climate-

smart precision agriculture farm machinery, improved high-yielding seeds, and other crop inputs in Pakistan. Likewise, Saudi Arabia's Sarh Attaqnia Company is a key partner that will invest in developing a state-of-the-art agriculture value chain encompassing sustainable production, processing, warehousing, and export marketing of grain crops to help ensure regional food security. Pakistan has over 20 per cent of its GDP linked with agriculture and about 64 per cent of the human resource associated with it. This collaboration will unlock a tremendous amount of untapped land resources of Pakistan by bringing fallow lands under cultivation for sustainable production of crops like rice, barley, oats, silage bales for livestock, and dairy industry under the Corporate Agriculture Farming initiative.

## Misuse of live virus vaccines aggravates LSD outbreak in Karachi: DG Livestock

### AVN Report

**KARACHI** - Only five districts out of 29 in Sindh have not yet reported a single case of lumpy skin disease (LSD) that has so far killed 250 cows. Its outbreak in Karachi got aggravated due to the misuse of live virus vaccines.

The provincial livestock director-general stated this during a question-answer session at

a seminar organised by the Association of Molecular and Microbial Sciences at Dow International Medical College, Ojha campus. Explaining how LSD spread in cattle in the city, livestock DG Dr Nazeer Kalhoro said dairy farmers, out of despair, made indiscriminate use of

live virus vaccines apparently without consulting a qualified veterinarian. These LSD vaccines were reportedly smuggled in from South Africa. Live virus vaccines carry risks and should be used with caution.

"Most dairy farmers in

either due to their good immune system or because the virus was yet to complete its incubation period. These animals also developed the full-blown disease when the live virus in the vaccine got combined with the pathogen

already present in their bodies. He claimed that the disease outbreak situation improved,

Karachi had a few infected animals with signs of the disease which led them to believe that the rest of their herd was safe and could be vaccinated. However, this was not the case," he noted. Their other animals, Dr Kalhoro, pointed out, were also infected but were not showing signs

particularly in Cattle Colony when farmers heeded the government's advice and stopped using live virus vaccines. Currently, the livestock staff was administering goat pox vaccine (to affected animals), which provided 40 to 50 per cent protection against LSD.



## DUHS announces to prepare vaccine for LSD

### AVN Report

**KARACHI** - Dow University of Health Sciences (DUHS), in collaboration with the Sindh Livestock Department, has announced the development of



Bovine Lumpy (Lumpy Skin) vaccine very soon.

This was announced by Prof Nusrat Shah, Pro-Vice-Chancellor of Dow University, while addressing a seminar titled "Current Status and Way Forward to Therapy and Prevention" organized by the Association of Molecular and Microbial Sciences at Abdul Qadeer Khan Auditorium, DIMC, Ojha Campus.

Earlier, Dr Nazir Hussain Kalhoro, Director-General, Livestock Department, Sindh, Prof Mushtaq Hussain, Principal Dow College of Biotechnology, also addressed the seminar. Prof Nusrat Shah said that according to the research done so far, there is no evidence of transmission of Lumpy Skin Disease in humans, nor does it have any effect on milk or meat.

He said that people in the country had seen a decrease in protein consumption which is why it is essential not to give up the use of meat. He urged the youth to come to veterinary sciences as there is a shortage of veterinary doctors in our country.

He said that this disease has been present for 100 years, and to date, no evidence of transmission of this disease has been found in any human being. He had contracted this disease; then he also got this disease in Lasbela, Balochistan. They immediately collected the sample and sent it to the federal government, and then the data collection and study was started. The federal government and the provinces had close contact on the issue of this disease. The federation announced Lumpy Skin Disease on March 4.

He said that there are 30,000 doses of vaccine in the province

**Continued on Page 14**



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# Hilton Pharma organises seminars in different areas

**KARACHI** - Hilton Pharma organized seminars in different areas of Pakistan including Karachi, Hyderabad, Sukkur, Rahim Yar Khan, Multan, Sahiwal & Kamalia to impart scientific knowledge on use of Medivac Vaccines for prevention of prevalent diseases in poultry. Progressive poultry farmers & doctors of the area & surrounding towns attended the sessions. Technical team from Hilton Pharma including Dr. Munawar Hassan, General Manager & Dr. Mubashir Hassan, Deputy Marketing Manager; addressed the audience with technical presentations on Medivac Vaccines specially Medivac ND G7B, Medivac Gumboro A, Medivac ND IB Emulsion and Medivac ND IB IBD Emulsion. The market need for these vaccines is high due to prevailing strain of Newcastle disease, Infectious bronchitis & Infectious Bursal disease in Pakistan. **-PR**



## An insight into the prevailing outbreak of Lumpy Skin Disease in Pakistan and its risk to the human population

by **Dr Arsalan Khan**  
*Veterinary Research & Disease Investigation Center, D. I. Khan*  
**Dr Muhammad Jamil**  
*PARC Arid Zone Research Center, D. I. Khan*

**L**umpy Skin Disease (LSD) is a viral infection of the animals notified by OIE (Office International des Epizooties). It mostly affects the large ruminants and is characterized by nodules formation on their skin. The characteristic features of the nodules reveal firm, circumscribed or round, painful, slightly projected skin lesions of 2-5 cm diameter, spread all over the body. These nodules heal up in 2-3 weeks, top of the lesions slough off forming scabs called "sit fasts", if not infected by secondary bacteria. Otherwise, the secondary bacterial infections aggravate the condition and cause extensive suppuration and pus formation and sloughing of the nodules, animal become emaciated and prognosis declines significantly rendering the animal recommended for euthanasia.

**Cause or Etiology:** Lumpy Skin Disease is caused by the Lumpy Skin Disease Virus of genus Capripox, belonging to the family Pox viridae. It is a double-stranded DNA virus and is susceptible to 55°C temperature for 02 hours and ether, alcohol and formalin also denature the virus effectively.

**Host:** This virus is host specific and affects cows, buffaloes, and wild animals only. To date, no evidence or reports have been found which may prove the transmission of the LSD virus to the human population and zoonosis of the disease. However, as it is a virus and there are extensive chances of mutation and transformation in viruses as seen in

### An insight to lumpy Skin disease

- Causes
- Transmission
- Signs and Symptoms
- Treatment
- Prevention and Control

**Meat of animals infected from lumpy Skin disease eatable or not?**



the COVID-19 strain which became zoonotic and devastated the human population globally. Therefore, Lumpy Skin Disease Virus may also be not underestimated for its potential to infect human beings in the future.

**Epidemiology:** The virus was reported in African countries in 2012 which later on spread to southeast Europe in 2020 and now an epidemic of the LSD is seen in Karachi, Pakistan in 2022, in which a total of 15000 animals were found positive with this virus, out of which 54 animals died from the infection and 4751 animals were recovered from the disease. The disease bears low morbidity and mortality rates of 10-20% and 1-5%, respectively. The incidence of the disease is highest in humid summers (June, July and August) and lowest in winters.

**Transmission:** The disease is contagious is transmitted from one animal to other animals by insect vectors including mosquitoes, biting flies and ticks. The secretion of the infected animals like blood, lymph, saliva, milk, ocular and nasal discharges, semen, etc contain the virus and the concentration of the virus is highest in the dried scabs

from nodules. **Clinical signs and symptoms:** The infected animals show febrile condition and have 105.8°F or even high body temperature. The animal is depressed, anorexic, emaciated and their milk production abruptly drops to 50%. Rhinitis and conjunctivitis are also evident and hypersalivation may also occur if the nodules proliferate in the buccal mucosa. The superficial lymph nodes are also enlarged (lymphadenitis) and the characteristic nodules are the imperative signs spread throughout the body with 2-5cm diameter and raised edges, the nodules may also be formed in the respiratory, gastrointestinal, reproductive and urinary tract of the infected animals causing systemic changes in the body. The large nodules become necrotic, fibrotic and may persist for several months if infected with secondary bacteria. Sometimes the nodules are innervated by flies larvae and resulting in myiasis of the nodules and making holes in the hide. These complications badly affect the prognosis of the animals and reduce the recovery rate of animals. Edema of the brisket, dewlap, legs and body prone the infected

animals to lameness and immobility. Bulls containing the virus in their semen become infertile and the pregnant animals abort.

**Treatment:** Lumpy Skin Disease is a viral infection and therefore, there is no specific treatment to combat the malady. However, antibiotics like Penicillin and Sulphonamides, parenterally as well as topically are recommended to counter the secondary bacterial infections, in addition to the symptomatic treatment. The animals show lifelong immunity, post-natural infection.

**Prevention and Control:** As Lumpy Skin Disease has no zoonotic significance and no reports of human infection are available to date, therefore, the prime objective of the prevention is to control the disease epidemic in the large animals to minimize the economic losses to GDP of the country and farmer community. Therefore, disease surveillance is of utmost importance and animals control by 20 Km from the infected area is mandatory. The import restrictions are unpreventable strategies to prevent the virus entry into the disease-free area. The following are the three stages of prevention and control of Lumpy Skin Disease.

- a) Animals that died of Lumpy Skin Disease should be properly disposed of, either buried or incinerated.
- b) Animals infected with Lumpy Skin Disease should be promptly isolated and treated.
- c) Healthy animals should be promptly vaccinated. Lumpivax and Herbivac are the available vaccines in Pakistan. However, in case the outbreak reaches beyond the control limits, then stamping out policy can also be used, in which all the affected animals are killed.



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# Lumpy Skin Disease: An emerging livestock issue in Pakistan

by Dr Muhammad Saqlain, Dr Usman Waheed, Dr Muhammad Adnan Saeed  
University of Veterinary and Animal Sciences, Lahore  
Sub- Campus, Jhang

**Introduction:** Lumpy skin disease (LSD), sheep pox (SP), and goat pox (GP) are contagious viral infections, affecting cattle (LSD), sheep and goats (SP and GP) with highly characteristic clinical signs affecting multiple body systems. Lumpy skin disease (LSD) is a viral disease of cattle and water buffalo that causes relatively low mortality; however, the disease can result in animal welfare issues and significant production losses. LSD is a notifiable disease by the World Organization for Animal Health (OIE) because of its potential rapid spread and substantial economic importance. LSD is one of the most economically significant viral diseases of cattle because of the loss of production, permanent damage of hides, infertility, and death. Although the mortality rate is usually less than 10%, the disease morbidity rate can be as high as 100%.

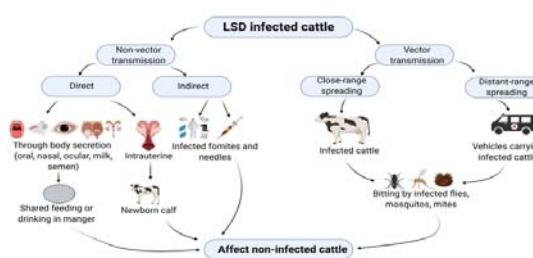
**Epidemiology in Worldwide:** Originally lumpy Skin Disease was limited to Africa, now the global distribution of LSD is increasing. Since 2019, the disease has spread through China and Southeast Asia. In 2021 the disease was confirmed in Vietnam, Thailand and Malaysia. In March 2022 it was officially reported by Indonesia on the island of Sumatra. The disease has spread to Europe in 2019.

**Epidemiology in Pakistan:** It is a general consensus amongst the veterinary community that disease is endemic in Pakistan as it shares borders with India, Iran and China where recent outbreaks are reported. However it is at high risk of a LSDV outbreak as neighboring regions

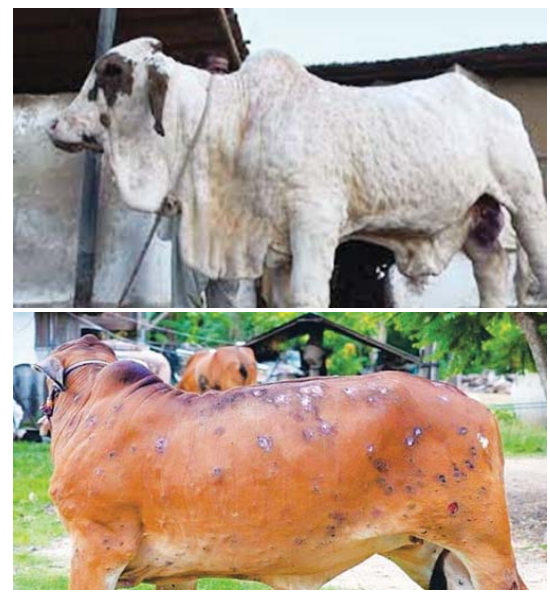
are becoming endemic. Lumpy skin disease has affected a large number of animals at several cattle farms in Karachi. It was first reported in Hyderabad three months ago. The Dairy and Cattle Farm Association (DCFA), Pakistan has said that Lumpy Skin Disease has entered Pakistan and there should strict ban on animals leaving Karachi as the virus is spreading in the city.

**Etiology:** Lumpy skin disease (LSD) is a viral disease of cattle, caused by lumpy skin disease virus (LSDV) within the genus Capripoxvirus, family Poxviridae. The genus Capripoxvirus also comprises goat pox virus (GTPV) and sheep pox virus (SPPV). The disease is spread primarily by biting insects such as certain species of flies, mosquitoes and possibly ticks. The disease can also be spread by fomites through such things as contaminated equipment and in some cases directly from animal to animal. It does not pose a risk to human health. There is an initial incubation period of 6 to 9 days during acute cases followed by a fever that may exceed 41°C.

**Pathogenesis:** Pathogenesis of LSD is described by following figure.



**Signs and Symptoms:** LSDV has a limited host range and does not infect non-ruminant hosts. Both sexes and all ages of cattle breeds are susceptible to LSDV. However, younger



animals may be more susceptible to the severe form of the disease. Infection typically causes an acute disease with fever, runny eyes, depression, and characteristic skin nodules. There may also be a marked reduction in milk yield as well as abortion in pregnant animals. The main clinical signs include fever, the appearance of nodules in the skin, lesions in the mouth, pharynx, enlarged superficial lymph nodes, edema in the skin, and sometimes death.

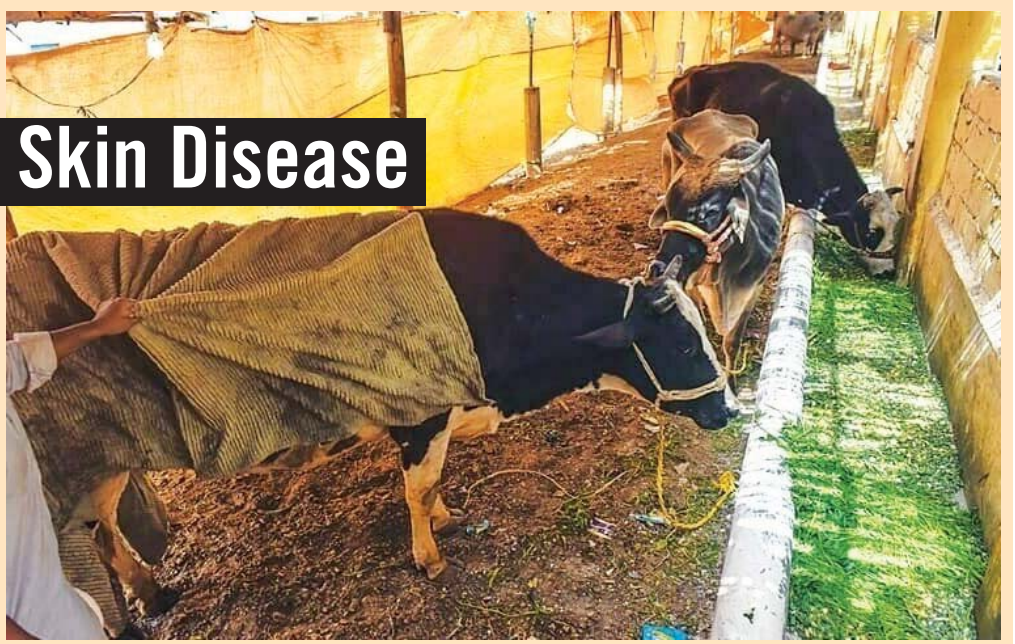
**Treatment:** There is no specific treatment for the virus, so prevention by vaccination is the most effective means of control. Secondary infections in the skin may be treated with Non-Steroidal Anti-Inflammatories (NSAIDs) and also antibiotics (topical +/- injectable) when appropriate.

**Imported Vaccine:** Any locally vaccine is not available in Pakistan. Imported vaccine which name is Lumpy Vax is available.

## Imported bulls from Brazil die of Lumpy Skin Disease in Karachi

AVN Report

**KARACHI** - Several exotic bulls and local cows have died of lumpy skin disease at a government cattle farm in Korangi in recent weeks amid conflicting reports about the disease affecting buffaloes. According to sources, out of the 17 bulls the government imported last year, only three to four animals now survive at the cattle farm. "One animal was found dead in its cage on arrival at the airport. Later, three to four animals died due to mismanagement at the farm, while several others died of lumpy skin disease," a senior veterinary official said. He added that only one Brahman and three Friesian bulls had been left out of the animals imported last year for the semen production unit. Livestock chief denies report of disease outbreak in buffaloes. The lumpy skin disease, sources said, had also affected indigenous breeds, the Red Sindhi and Thari bulls, at the farm and killed at least four animals. Some of the infected cows were recovering.

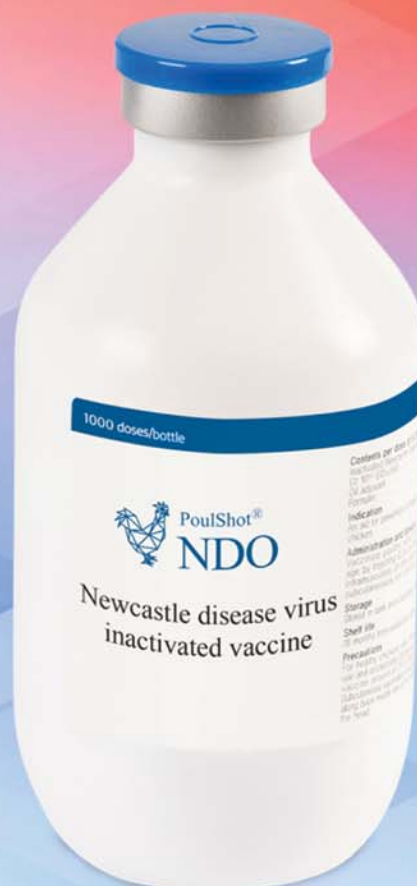






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# Use of fruit by-products as ruminant diet; A big initiative towards 'zero waste' policy

by Dr Muhammad Yaser Khan, Khadija Ramzan, Dr Nida Irshad, Zahra Jabeen  
• Para Veterinary Institute, Karor Lal Eason, (Layyah Campus) University of Veterinary & Animal Sciences, Lahore.  
• National Institute of Food Science and Technology, UAF, Faisalabad.  
• Nigde ömer halisdemir üniversitesi, Nigde., Nigde, Turkey

**Introduction:** Fruit co-products include all products derived from the various stages of fruit processing that are suitable for animal consumption and promote welfare and health, as well as human health and safety. According to the European Union Regulation EC 767/2009, feed materials are defined as: products of fruits or animal origin, whose principal purpose is to meet animals' nutritional needs, in their natural state, fresh or preserved, and products derived from the industrial processing thereof, and organic or inorganic substances, whether or not containing feed additives, which are intended for use in oral animal-feeding either directly as such, or after processing, or in the preparation of compound feed, or as carrier of pre-mixtures.

The area under fodder production cannot be increased due to increasing human population and urbanization and the industrial intensive model of livestock production has severe limitations due to increasing cost of fossil fuels, competition for food-feed-fuel and other biophysical limiting factors. The global price of feed ingredients such as maize, wheat, fish meal and soybean meal has increased by 160, 118, 186 and 108 percent, respectively in the last decade, while the price rise in livestock products such as poultry meat and lamb meat was only 59 and 37 percent respectively, while that of beef was 142 percent (Index Mundi, 2013). Under these conditions, to meet the nutrient requirements of livestock and to sustain their productivity and profitability seem only possible if non-conventional, alternate feed resources are explored.

## Background history:

Fruit and vegetable processing, packing, distribution and consumption generate a huge quantity of fruit and vegetable wastes, for example, approximately 1.81, 6.53, 32.0 and 15.0 million tonnes of fruit and vegetable wastes (FVW) are generated in India, the Philippines, China and the United States of America, respectively and most of this is being disposed of either by composting or dumping in the landfills/rivers, causing environmental pollution.

The Pakistan Environmental Protection Agency found that 30 % of the fruits and vegetables produced in Pakistan are wasted in harvest. For an agrarian economy like Pakistan, wastage of fruits and vegetables in post-harvest periods could bereft the nation of the economic benefits. Similarly, 40 % of food in Pakistan is wasted. This includes food loss during the supply chain (production, post-harvest

handling, agro-processing, distribution and consumption) that occurs every year. Such unconventional resources can act as an excellent source of nutrients and help to bridge the gap between demand and supply of feedstuffs for livestock. In addition, their use can also reduce the cost of feeding, giving higher profits to farmers. there is a considerable shortage of feed availability in most developing countries. Taking some examples from Asian countries, Bangladesh faces a deficit of 49.4 and 81.9 percent of roughages and concentrates (Uddin, 2013), while in Pakistan a shortage of 43.9, 49.7 and 44.2 percent of dry matter (DM), crude protein (CP) and total digestible nutrients (TDN), respectively has been recorded (Habib, 2008). In China, there was a deficit of 10, 30 and 20 million tonnes of protein feed, energy feed, and aquatic feed, respectively (Jie Chen, 2012).

## Fruits and vegetable by-products as functional feedstuffs:

**Citrus:** It contains 5-10 % CP and 6.2 % EE, 10-40 % soluble fibre (pectins) and 54 % water soluble sugars, 1-2% calcium due to the addition of lime and 0.1 % phosphorus (Crawshaw, 2004; Bakshi and Wadhwa, 2013). Citrus pulp is a rich source of trace elements and their concentration is much below the maximum tolerance limit for ruminants. The composition of dried citrus pulp is variable and depends mainly on the relative proportions of skins and seeds, which varies according to the citrus species, variety and the harvesting season. It is much less valuable to poultry due to the fibre content and to the presence of limonin in the seeds, which is toxic to monogastrics (Göhl, 1982).

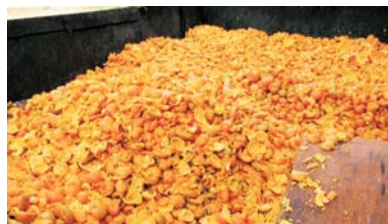
**Production:** Pakistan is producing more than 30 types of different fruits of which citrus fruit is leading among all fruits and constitutes about 30% of total fruit production in the country. Above 90% of citrus fruits are produced in Punjab province and distributed through different value chains in domestic as well as in international markets. A large part of citrus fruit produced in Pakistan is mostly consumed locally without much value addition; however, 10-12% of total production is exported after value addition.

## By-products & its uses:

**Essential oils:** The peel of the citrus fruit has numerous glands that contain oil that is typically recovered as a major by-product. Each type of citrus fruit has its own characteristic set of compounds that comprise the oil and that are responsible for its flavor and aroma. Essential oils are used as food and beverage flavors, in the perfume industry, for personal care and consumer products, and in specialty chemical commerce. Cold-pressed orange oil is used as a flavoring for orange juice, and to a large degree, is responsible for the characteristic orange flavor of the juice.

**d-Limonene:** d-Limonene is a monocyclic

terpene that is the major constituent of oils recovered from citrus peel. d-Limonene is used industrially as feedstock for adhesives, degreasers, flavors,



cleaners, and solvents and as a diluent for other flavors.

**Flavonoids and Limonoids:** Citrus fruit is particularly high in flavonoids and limonoids, compounds that have garnered interest for their potential pharmaceutical and medical applications

**Inclusion as animal diet:** The fresh citrus pulp waste is palatable to cattle, when they are accustomed to the feed and a mature cow can consume about 10 kg per day. Dried citrus pulp has been used as the main energy source for beef cattle and heifers, and up to 45 percent has been used in rations. However, the pulp should not be used at high levels for milking cows as milk production tends to decrease. Digestibility trials with sheep show that its digestibility decreases when citrus pulp is included at levels in excess of 30 percent of the ration.

**Cattle Feed (Dried Pulp):** The majority of the solid waste product from processing plants is the citrus fruit peel and the membranes from inside the fruit. This material amounts to about 40 to 50% of the entire mass of the incoming fruit, and is the material from which cattle feed is produced. The use of citrus residue for dried citrus pulp pellets (CPP) for cattle feed has been utilized since the 1920s.

**Pomegranates:** Pomegranate is an important fruit crop of tropical and subtropical regions of the world. In Pakistan, Balochistan is the main producer



of pomegranates, although Khyber Pakhtunkhawa and Punjab are also producing pomegranates in isolated areas on a small scale. ... The edible parts of pomegranate fruit is 52 % of total fruit weight, comprising 78% of juice and 22% seeds.

**Production:** In Pakistan, it is still grown as minor fruit on nine thousand hectares with forty thousand tons' production. Baluchistan is the major producer of pomegranates, although KPK and Punjab are also producing pomegranates in isolated areas on a small scale. Pomegranate is a deciduous shrub with 5 to 8-meter height. It grows easily in tropical and sub-tropical regions of world.

It requires well drained loamy soils and has ability to survive in salt affected soil up to certain limit.

## Pomegranate by-product and its use:

Pomegranate by-product can be used as a relatively good agro-industrial by-product for ruminant nutrition. Pomegranate fruit consists of three parts, the seeds, the juice and the peels which include the husk and interior network membranes. using agro-industrial by-products is an alternative method for overcoming shortages and higher prices of conventional feed in ruminant nutrition. Many by-products have a substantial nutritive value as animal feed. Thus cereals can be largely replaced by these by-products and therefore competition between human and animal for nutrition is less. Furthermore, using these by-products like pomegranate by-product in animal nutrition can solve related environmental problems. The peel packs some of the weight-boosting and health-enhancing effects of antibiotics and hormones without the detrimental effects, and researchers say it may yield meat with higher levels of beneficial antioxidants.

**Inclusion as animal diet:** Pomegranate pulp, a by-product of the pomegranate juice industry, contains a remarkable quantity of bioactive compounds that can favorably affect ruminant metabolism and milk quality. Pomegranate peel left over from production of the juice renowned for its potential health benefits can make a nutritious feed supplement for cattle. Boosting antioxidant levels in the diet of cattle may help improve their health. Those findings seemed to make pomegranate peel, a waste product of the pomegranate industry with higher antioxidant levels than the juice itself, and an attractive candidate as a nutritional supplement for cattle feed. From an animal nutrition point of view, pomegranate byproduct contains protein, carbohydrates, lipids, vitamins, minerals and water - all nutrients that can be used by dairy cattle.

**Carrots:** Carrot is an important vegetable and is being consumed all over the world. The fleshy roots are eaten as raw in salads, boiled or steamed in vegetable dishes and also used with other vegetables



in the preparation of soup. Antioxidants are nutrients present in plant-based foods. They help the body remove free radicals; unstable molecules that can cause cell damage if too many accumulate in the body.

**Production:** It is cultivated in Pakistan on an area of 11 thousand hectares with

**Continued on Page 14**



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# Role of epidemiological studies in Parasitology

by Dr Tahira Iftakhar (M.Phil. Scholar),  
Professor Dr. Muhammad Usman Nasser  
(Parasitology Faculty)  
University of Agriculture, Faisalabad

Multiple approaches are used for the disease diagnosis in correct way and it has always been a major part for proper treatment and prevention of any debilitated condition and among them, one approach is epidemiology, used by whole world for doing disease analysis, diagnosis and checking prevalence of those diseases in any region of the world. Since the occurrence of COVID wave, World has become more alert and is in search of finding latest investigation tool for fighting against any incoming such type of outbreak. Epidemiological study bewitched attention.

**Epidemiology:** According to the World Health Organization, It is a study in which we measure how diseases occur in people of different areas, their causative agents, frequency of distribution, parameters affecting their distribution, and how they transfers among people of different areas and why they occur in different individuals. This gives us an analysis for the planning of different preventive control measures, management ways, and strategies against these diseases. It also includes disease mortality, morbidity, pathogenicity, and virulence of organisms in an area, where we conduct our study. All of this data helps us in many ways. It gives us the spread ratio of a disease in that area and we can estimate its transmission and prevalence rate to other areas.

In an epidemiological study; we use different methods for analyzing data. It includes collection of data by different sampling methods such as questionnaires, interviews, observations, Focus group, histories, visual ways, from hospital records in indoors and outdoors activities, surveys of different geographical areas and by online methods after developing a questionnaire on google form and circulate it on different social medias. Then we conduct a study design according to our data and analyze the data, use a proper statistical method for evaluation of our results.

Epidemiology of parasites includes the study of epidemics of the causative agent of different parasitic diseases, their surveillance, drug-sensitive, susceptibility, resistance and dose. We design our epidemiological study into descriptive and analytical study. And in Epidemiological study is

In the Epidemiology of parasitology, we study the distribution of different parasitological diseases in different areas of the world, frequency, distribution life cycle of different parasites, their definitive hosts, Intermediate host ,reservoir host , distribution of host, the climate of that area, host parasites relation in that area , the population affected by a parasite in that area. All of these parameters are studied in this area. We design this study into following categories.

**Parasitology:** it is the study of different endo and ecto-parasites either of animals or humans, their anatomy, physiology, life cycle, route of infection control and prevention by different strategies, Parasitic diseases have been known in humans history since a long time ago. One of them is Malaria, spread

by the bite of mosquitoes having infective stages of the Plasmodium in its saliva. And people considered it as “FOUL AIR”. Then new disease Plague caused by *Flea bites* (who got an infection from rats having *Yersinea pestis*) spread to humans in Asia about 2000 years ago as an epidemic form. It causes huge mortality.

**In Veterinary Parasitology:** We study different parasites of different animal and diseases which they cause. We study Helminthes (nematodes, cestodes, and trematodes), protozoa (amoeba, ciliates, babesia, thalaeira, Anaplasma and giardia), and arthropods (ticks, mites, and lice) in livestock animals, pets, birds, and aquatic animals. Their mode of action, transmission of parasites, their life cycle, route of transmission, clinical signs and methods of control and prevention including different management ways and by use of different anthelmintic and acaricidal drugs.

Veterinary parasitology was known for a long time ago, in their epidemiology, we study the presence of any parasitology disease in a specific area, region, or zone. And check all the parameters which promote its frequency in that area whether they are ecological, geological, or climate. This helps us in identifying their zoonotic importance too.

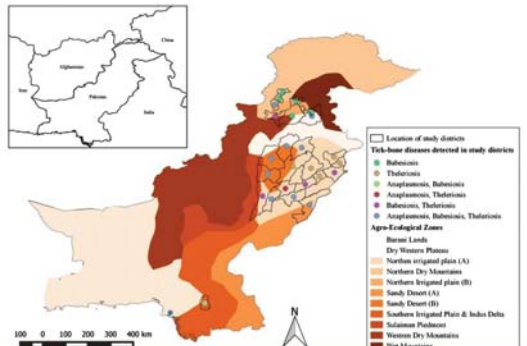
**Epidemiology of parasites:** Deals with the study of different parasitological diseases, their causative agent, vector prevalence , route of transmission, spread, clinical signs and symptoms, mortality , morbidity , frequency , prevalence rate , route of transmission , duration of infection (per –acute , acute , chronic) , virulence , pathogenicity , incubation period , animals and organs infected, their zoonotic importance, drug susceptibility and resistance, surveillance, screening of different animals for parasitic diseases in a specific area, biomonitoring, genomic study of causative parasites, application of strategies to control it, vaccination and immune system boosting up against that parasite, Dynamics of parasitic diseases in a specific population in a specific area in a special time zone, parasites prevalence, ecological parameters, host-parasites relationship, the effect of climate in a specific area in parasites' presence, distribution and spread.

**Impact Factor:** According to an international survey, the impact score of epidemiology and control of parasitic diseases is 2.59.

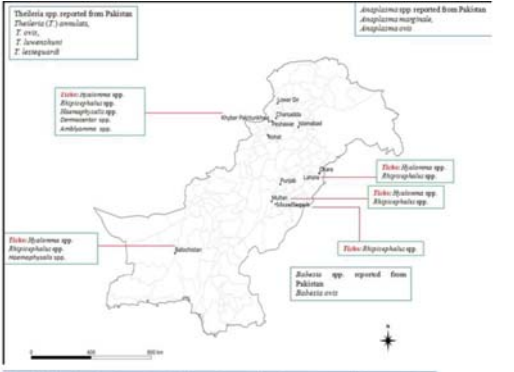
**Occurrence of parasitological diseases:** The parasitological diseases are more prominent in those areas which are developing or under developing due to poor water, feed and, healthy hygienic measures. And in those area where pets are more in numbers. Due to the lack of clean water and food and sanitary conditions, these are also more present in tropical and subtropical areas of the world.

**Importance of epidemiological knowledge in Parasitology:** Application of epidemiological data, methods, and analysis ways are important in controlling these diseases. In the epidemiology of parasitic diseases, we have to study epidemiology, diagnosis, eradication,

Diseases name	Prevalence	Reference
Protozoan Infection	0.6-60.5%	Baqai et al.,1985 Bilgees et al.,1988
Giardia intestinalis	0.4-50.08%	Khan et al.,1988 Kamran et al.,2005



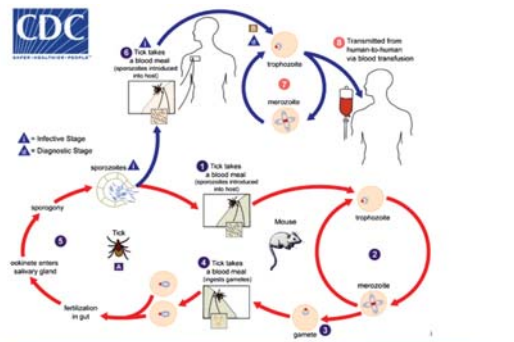
In given picture, Map of Pakistan is present; it is showing different district of Pakistan and their tick born disease prevalence highlighted by different colors.



Map of Pakistan showing the sampling sites from where small ruminants were enrolled to report the tick, Theileria, Babesia, and Anaplasma spp. diversity as reported from various studies in this country.

drug sensitivity, and resistance of different antiparasitic drugs and control measures. After that, we run different public awareness programs and prophylactic measures in that area for controlling this disease. We perform different types of study, collect data, samples and perform different diagnostic tests such as blood examination by thin, thick smear use different stains such as wright `stain, Leishman's stain, field stain, and Giemsa stain, fecal culture, direct smear, fecal slide observation for finding out gastrointestinal worms in form of ova, adult worm or larva, we check worm burden in our study area` animals or people, drug sensitivity before application of any anthelmintic, Vector association and prevalence in that area either fly, snails, mollusks, ticks, mites, mosquitoes or mechanical vectors such as carrier animals, presence of parasites in these vectors, fly or insect repellent in our herd or zoo for effective prevention and control of any parasitic diseases' outbreak. From this study, we can control zoonotic diseases of animal origin that largely effect humans such as the Plague, Coronavirus, SARS, Covid virus, Cryptosporidiosis, Leishmania. And categories diseases as epidemic, pandemic and sporadic. We also involve sero-epidemiology ( disease investigation in a population by measuring variable present in the serum, Antibodies or antigens against a diseases ), molecular epidemiology ( to study genetic relatedness of diseases, use molecular epidemiological tools for diseases diagnosis and surveillance , PCR , RFLP,MLST, Phylogenetic analysis, BLAST,NGS,MALDI-TOF.

**Example:** In our area of Okara, we came to know that a large number of animals are reported for having babesiosis. It is transmitted by the bite of a tick having, *Babesia bovis*, and *Babesia bigemina* protozoa in it. It causes red water, hemoglobinuria, especially in bovine and cattle. It is also a zoonotic disease if *Babesia microti*



This is a complete cycle of babesiosis, indicating that how infective stage of babesia goes to tick vector (tick) and then by bite of tick, it transmit into cattle, bovine and in case of zoonotic strain in human and causes signs and symptoms. After knowing this life cycle, we have many control way for stop of this infection.

is present. It will affect in many animals in direct and indirect ways so its control is important. In tropical and subtropical areas, it cause decrease in milk production, treatment cost, abortion, anemia, and stress. It is the most economically affecting disease. Here we will apply study design in that area. Epidemiology of babesia depends on many factors such as the presence of ticks vectors, parasites presence in them, climatic conditions, immunity, nutrition of the host. We will collect blood from different animals by randomized methods. Stain it by using different stains. We will perform a phylogenetic

Continued on Page 14





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Infectious bronchitis virus (KM91 strain)..... $\geq 106.1$  EID50  
Newcastle disease virus (LaSota strain)..... $\geq 108.4$  EID50  
Infectious bursal disease virus (CAG strain)... $\geq 106.4$  EID50



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# Reduce milk production cost by 33.3% through stress management: Mr Najam & Prof Qureshi

**PESHAWAR** - Milk production cost may be reduced by decreased by 28.58 and 33.34%, respectively by reducing stress through improvement in the feeding plan from traditional to Asian Rule of Thumb (ART) strategy and milk thistle supplementation. It may be considered

as a good practice for developing a farm-based entrepreneurship model as envisioned under Dairy Science Park. This was the finding of PhD thesis research conducted by Dr Najam Saqib under supervision of Prof Dr M Subhan Qureshi, University of Agriculture Peshawar.

The presentation was attended by the senior and junior faculty members and students from various

along with cost effective feeding. Stress due to low availability of space per animal have an adverse effect on the endocrine & metabolic profile of the animals. Metabolic stress may occur due to an alteration in DMI and increase in energetic demand occurring at calving and at the beginning of lactation.

Different antioxidants are used to reduce stress and improve economic traits. Milk Thistle extracts (Silymirin) is a pro oxidant free radical scavenger, more potent than Vitamin-E, helps in detoxification and encourages concentration of glutathione in cells. The study was completed in a series of three experiments to explore the interactions among management, metabolic and economic parameters.



departments of the University. Prof S M Suhail concluded the session through his closing remarks. Mr Najam has been working on the issue for his PhD degree at the Livestock Management Department of the Faculty of Animal Husbandry and Veterinary Sciences.

The Supervisory Committee comprised Prof. Dr Muhammad Subhan Qureshi as Major Supervisor while Prof. Dr Syed Muhammad Sohail and Dr Riffat Ullah khan worked as members. The thesis defence was held at the videoconference room of the University.

Prof. Dr. Mehmet Ulas Cinar from the University of Erciyes, Turkey and Prof. Dr. Sagar M. Goyal from the University of Minnesota, USA evaluated the thesis as international experts and recommended it for award of the degree.

Pakistan is the 4th largest milk producing country in the world. About 80% milk is produced at small scale in rural areas, 15% peri-urban and 5% from the urban areas.

Although Pakistan has got the best buffalo breeds (Nili Ravi and Kundi) but they are not producing according to their potential, mainly due to substandard management practises, low availability of space, shortage of feed and fodder and farming on traditional lines.

The livestock industry recently focused on stress and animal welfare

Based on the results obtained, it was concluded that increasing farm size decreased reproductive activity and milk yield by 58.49% and 29.50% respectively. The adverse effect of stress on two economic traits (milk yield and reproduction) reduced the farm

profitability. Improving the management condition will reduce the stress as evident under performance of animals at small farms, usually managed by the labourers of the farming family. Improving the feeding plan from traditional to ART enhanced milk yield by 33.59%. This increase was associated with improved, post-partum blood metabolites and progesterone levels and reduced stress indicators cortisol and MDA. Supplementing milk thistle extracts (Silymirin, 10g/animal) increased milk yield (+76.35%) and progesterone (89.45%).

The livestock farming and processing network in the country possesses the potential to generate decent employment and exportable surpluses through good practices and innovations. This study helped in reducing the cost of milk production by 33.3% which may enhance the viability of entrepreneurship models across the food value chain. Such studies are recommended to identify the biological, management and marketing bottlenecks and develop entrepreneurship models. **-PR**

# First ever foot ball based Futsal Flood Light League organised in CVAS Jhang

By Dr Arbab Sikandar

**LAHORE** - First ever CVAS Futsal league was organized by Sports Incharge Dr. Arbab Sikandar with a Proctorial team of batch-017 including Zeeshan Khan, Zaighum Usman, Aqib Shah and M. Uzair. Like before, this activity has been launched on the directive of Prof. Dr. M. Fiaz Qamar Principal CVAS, Jhang and vision and mission of worthy Vice-Chancellor Prof. Dr. Nasim Ahmad S.I. University of Veterinary and Animal Sciences, Lahore. CVAS Cowboys, CVAS Falcon, CVAS Strikers, CVAS Phantoms, CVAS Thunders and CVAS Armors were the teams that made based on player's position and capabilities. The Principal CVAS along with Sports Incharge inaugurated the event by cutting the ribbon and

by kicking a football in the goal. All teams were summoned in the ground and National Anthem was played followed by beautiful exhibition of fireworks which was arranged by the Organizers. This

week long league is being organized for the first time in the history of CVAS, Jhang. On Final day the first two matches were played during

day time due to shortage of time and the Cvas Strikers defeated the CVAS Cowboys in the final. The Chief Guests of the event was a delegate from Alltech Pakistan. After arrival of chief guest, a cake was cut in a gesture of inauguration. Then both the finalists teams lined up on the field and worthy Principal along with guest greeted them. Lucky draws were picked by worthy guest and gifts were given to the winners of lucky draws. Prize distribution ceremony was held in which our guests distributed trophies and certificates to the winner and runner up team players and the organizers. Our guest appreciated the organizers for the arranging a wonderful event and by indulged the students in healthy extracurricular activities. The ceremony was ended with the concluding remarks of worthy Principal highlighting the importance of extracurricular activities in the professional institutions.



تدابیر کے ساتھ preventive active by product کا استعمال صحت مند آنتوں کے flora کو برقرار رکھنے کے لیے ایک بہتر حل سمجھا جاتا ہے۔

اینٹی بائیوٹک resistance کی وجہ سے اینٹی بائیوٹک کے متبادل استعمال پر تحقیق ہو رہی ہے۔ جیسے کہ پرو بائیوٹک (probiotic)، پری بائیوٹک (prebiotic) کا استعمال اینٹی بائیوٹک کے متبادل کے طور پر بہتر ہیں۔ کیونکہ ان کے استعمال سے مزاحمت (resistance) پیدا نہیں ہوتی ہے۔ اور یہ گٹ کے فلورا کو بتلیس رکھنے میں مدد دیتے ہیں۔

نتائج (Conclusion):

معاشی نقصانات کی وجہ سے پولٹری انڈسٹری میں نیکروٹک اینٹرائنس ایک اہم بیماری ہے۔ اینٹی بائیوٹک resistance کی وجہ سے اینٹی بائیوٹک گروتھ پروموترز (AGP) کے استعمال میں کمی نیکروٹک اینٹرائنس کے اضافے کا باعث ہے۔ اب کلوسٹریڈیم کے خلا اینٹی بائیوٹک کا متبادل تلاش کرنے کی ضرورت ہے۔

بقیہ: پولٹری انڈسٹری۔۔۔۔

مطالعات سے یہ بات واضح ہوئی ہے کہ (subclinical) انفیکشن ایک عالمی مسئلہ ہے اوسطاً 80% پرندوں کے جھنڈ (flock) میں کلوسٹریڈیم انفیکشن کی تشخیص (Diagnosed) ہوئی ہے۔ امریکہ اور کینیڈا میں (subclinical) انفیکشن کی وجہ سے سالانہ معاشی نقصانات کا تخمینہ 1.5\$ سے 5 سینٹ فی پرندے تک لگایا جاتا ہے۔ کلوسٹریڈیم پریفرینجن bird flock کے 30% تک کے معاشی نقصان کا باعث بنتا ہے۔ نیکروٹک اینٹرائنس کی روک تھام:

subclinical نیکروٹک اینٹرائنس کی تشخیص نہیں ہوتی ہے اور اس کا علاج بہت دیر سے ہوتا ہے۔ جب آنتوں میں بھرے مواد اور گیلے کورے (litter) کا چٹا چٹا ہے اس کا مطلب ہے کہ کلوسٹریڈیم پہلے ہی آنتوں کی نالی میں کٹی گا بڑھ چکا ہے۔ کلوسٹریڈیم اینٹرائنس کو بیچ کرنے کا روایتی طریقہ اینٹی بائیوٹک گروتھ پروموترز (AGP) کا استعمال ہے۔ پہلی علامات سے پہلے کلوسٹریڈیم پریفرینجنس کے خلاف احتیاتی



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Lumpy Skin Disease affects ...

*Continued from front page*  
It was informed that this disease had been present in different countries of the world since 2012, and this year it appeared in India, Iran and now Pakistan.  
The chief secretary decided to launch a vaccination drive in the affected areas and directed the livestock department to vaccinate the animals affected by the disease.  
The chief secretary also directed the livestock authorities to spray mosquito repellent in and around cattle farms with the help of district administration and provide awareness to the cattle owners about the disease.  
He said that along with vaccination of animals, other skin medicines should also be given to the cattle and movement of animals from the affected areas should also be stopped.  
The livestock department has also set up a helpline desk (0229201913) in Hyderabad.

DUHS announces to prepare ...

*Continued from page 02*  
which are being administered to the animals around the affected areas. As soon as the federal government was written for the vaccine on March 4th, 4 million doses of the vaccine were being urgently imported from Turkey. We will make our own vaccine in 8-9 months. Vaccine from abroad is expensive. The government of Sindh has provided funds for this. A license will be issued today.  
He said that the vaccine would be provided to the cattle in the province free of cost by the Sindh government. Cattle that will be vaccinated will be protected from the disease for their whole life. Some people have imported vaccines privately and vaccinated their cattle. It is not reliable; if it is not administered under the supervision of experts, it is harmful. Since we have explained to the farmers not to use this type of vaccine, then the spread of this disease has decreased. He said that 13,000 animals in Sindh had been cured of this disease and they had become immunized for their whole life. In ten to twelve days, our teams will vaccinate 200,000 cows in Sindh.

Use of fruit by-products ...

*Continued from page 08*  
an annual production of 195,000 metric tons of carrot roots, with an average yield of 17815 kg ha-1. The yield of carrot variety T-29 in Pakistan is much lower than its potential [22000 kg ha-1].  
**Carrot by-product and its use:**  
Carrots are highly palatable and readily consumed by cattle. Carrots are a rich source of ME (3.29 Mcal/kg DM) and NE (1.94 Mcal/kg DM) for lactating dairy cows. Fresh carrots can be fed up to 20 and 25 kg/day to young bulls and dairy cows and can be included up to 40 % in the diet of steers, without any adverse effects (Rust & Buskirk, 2008). Due to high fermentable sugars, fresh carrots should be combined with fibrous feeds to prevent acidosis and scouring, and should be introduced progressively in the diet (8-10 days). The mixture of carrots and concentrate feed should not exceed 50 % of the diet DM and ad libitum feeding must be prevented. Prolonged use of carrots in the diet of dairy cows increased the carotene content of the milk and produced yellow coloured milk fat (Fuller, 2004). A significant improvement in the reproductive performance of high-yielding cows fed 10 kg/day fresh carrots in the diet was observed; a decrease in the calving interval from 167-185 days to 110-171 days, a decrease in the number of inseminations necessary for successful fertilization (1.8-2.7 to 1.0-1.8) and an increase in the calving rate (84.5 to 92 percent).  
**Inclusion as animal diet:**  
Carrots are widely used as food and remarkable amounts of carrot by-products, such as peels and discarded car-Carrots are rich in sugar making them very palatable and traditionally, they have been used as a supplemental feed for horses. They are also readily consumed by ruminants and fit well e.g. in total mixed ration (TMR) for growing cattle. Muller et al. (1984) reported several on-farm examples where carrots were fed successfully to lactating dairy cows. Anton(2015) studying the effect of feeding seven kg per day of carrots to dairy cows found an increase in carotene concentration in blood

as well as 30% higher  $\alpha$ -tocopherol concentration and more intense yellow colour of butter resulting in improved cow health and product quality. Nalecz Tarwacka et. al (2003) reported an increase of Vitamin A and conjugated linoleic acid concentrations in milk of cows fed five kg of carrot daily. Carrots were included at 40% on dry matter (DM) basis in the diet of steers without adverse ef-fects (Rust and Buskirk 2008)  
**Carrot pomace:**  
Carrot pomace is a byproduct obtained from carrot juice processing. The juice industry produces significant amounts of carrot pomace. It is estimated that in the United States (US) over 125,000 tons of pomace per year is produced. Carrot pomace is generally used as animal feed, which is a low value outlet for the pomace, even though it contains a high amount of beneficial nutrients, including bioactive compounds with antioxidant properties.

Role of epidemiological studies ...

*Continued from page 10*  
analysis for identifying this strain. We will involve climatic conditions and check the presence of ticks in that area. More than 100 species of babesia are present in different areas of the world affecting animals, mammals and humans.  
**Conclusion:**  
Our country is an agricultural country and a major portion of our socio-economic development is based on livestock. Different diseases either they are bacterial, viral, protozoal, fungal, or any other origin, are directly or indirectly linked with different parameters such as vectors, host, human, climate, season, and environmental interaction. Epidemiological studies help us in controlling all of these diseases by giving us quick analytical data and reports about the prevalence of any diseases of any origin by using different methodologies, statistical analysis, and map distribution. We can apply different control measures, treatment strategies, and vaccination. All of this will improve our development and will save us from any disease outbreak especially of animals or parasitic origin.

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والی ٹیموں کے درمیان فائنل مقابلے کا انعقاد کیا گیا جس میں DMG GLADIATORS بہترین کارکردگی دکھاتے ہوئے ٹائٹل اپنے نام کرنے میں کامیاب ہوئی آخر میں جنرل منیجر سیلز اینڈ مارکیٹنگ ڈاکٹر محمد سلیمان اور نیشنل سیلز منیجر ڈاکٹر صدام طارق گوندل کی طرف سے جیتنے والی ٹیم کے کپتان (محمد عبداللہ TSM لاہور)، رنر اپ ٹیم کے کپتان (شازل حمید ZM)، مین آف دی ٹورنامنٹ (عبداللہ زاہد SPO راولپنڈی)، بیٹس مین آف دی ٹورنامنٹ (شازل حمید ZM) اور بالر آف دی ٹورنامنٹ (بختیار علی خان ASM خیبر پختونخوا) کے درمیان انعامات تقسیم کئے گئے آخر میں تمام ٹیمز کا گروپ فوٹو ہوا۔ DMG تمام سیلز ٹیم نے DMG ٹیممنٹ کی ان کاوشوں کو سراہا اور اسے یادگار قرار دیا۔

SERVICES، شامل تھے اس کے ساتھ ساتھ DMG کی 20 سالہ تقریبات کے موقع پر اور سیلز ٹیم کی تفریح و طبع کے لیے سپورٹس گالا کا انعقاد کیا گیا جس میں کرکٹ میچز کروائے گئے اور اس مقصد کے لیے 4 ٹیمیں ترتیب دی گئیں جن میں DMG LIONS، DMG، DMG WARRIORS اور DMG GLADIATORS شامل تھیں نے شرکت کی اور ماڈل ٹاؤن لاہور میں کرکٹ میچز کا انعقاد کیا گیا۔ پہلا میچ DMG WARRIORS اور DMG GLADIATORS کے درمیان کھیلا گیا جس میں DMG GLADIATORS فتح سے ہمکنار پائی۔ دوسرا میچ DMG اور KINGS کے درمیان کھیلا گیا۔ جس میں DMG LIONS کامیاب ٹھہری اس کے بعد جیتنے

DMG نے 20 سال پورے ہونے کی خوشی کے موقع پر سیلز ٹیم کے لیے لاہور میں تین روزہ ٹریننگ سیشن اور سپورٹس گالا کا انعقاد کیا جس میں DMG ٹیممنٹ کے جنرل منیجر سیلز اینڈ مارکیٹنگ ڈاکٹر محمد سلیمان اور نیشنل سیلز منیجر ڈاکٹر صدام طارق گوندل اور ڈائریکٹر سیفانہ ڈاکٹر مارکیٹنگ گروپ کی تمام سیلز ٹیم نے بھرپور شرکت کی پہلے روز میچز کی CAPACITY BUILDING کے لیے مختلف MANAGERIAL SKILLS پر ٹریننگ کروائی گئی دوسرے اور تیسرے روز پوری سیلز ٹیم کے لیے SOFT SKILLS کے مختلف موضوعات پر ٹریننگز کروائی گئیں جس میں SELLING، SKILLS، DRESS، SKILLS، SUCCESS FOR COMMUNICATION، CUSTOMER، SKILLS

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# اے وی این

ایگزیکٹو وٹرنری نیوز

## پولٹری انڈسٹری میں نیکروٹک اینٹرائٹس انفیکشن

E جبکہ قسم A and C پولٹری میں کلوسٹریڈیم کی بیماری کی بنیادی وجہ ہے۔ ایک طویل عرصہ سے یہ خیال بھی کیا جا رہا تھا کہ افلاتوکسین (Aflatoxin) ذمہ دار عنصر ہے۔ جبکہ نئی تحقیق بتاتی ہے کہ قسم B کا تعلق نیکروٹک اینٹرائٹس کی وجہ سے ہے۔ کلوسٹریڈیم پریفرینٹس عام طور پر ماحول جسے فیڈ، پانی اور مٹی سے چکن میں داخل ہوتا ہے۔



**NECROTIC ENTERITIS IN POULTRY**

(enzymes) پیدا کرنے کے قابل ہے۔ کلوسٹریڈیم بیکٹریا کو 5 اقسام میں تقسیم کیا گیا ہے۔ جیسے کہ A, B, C, D

نورینک (spore forming) بیکٹریا ہے۔ متعلقہ گھاؤں کے لیے ذمہ دار کئی زہریلے (toxins) اور انزائمز

mucosa کو خراب کرتا ہے۔ اس سے عمل انہضام اور غذائی اجزاء کے جذب میں کمی، وزن میں کمی اور فیڈ کی تبدیلی (feed conversion) میں اضافہ ہوتا ہے۔ نیکروٹک اینٹرائٹس کی ذیلی طبی شکل (subclinical form) بنیادی طور پر ہوتی ہے۔ شرح نمو میں کمی (reduced growth rate) اور فیڈ کی تبدیلی (feed conversion) کی وجہ سے اہم معاشی نقصانات کا باعث بنتی ہے۔

پولٹری پروڈیوسر کی طرف سے دیکھی جانے والی علامات میں 23 ویں دن کے لگ بگ بڑھوتری میں یقینی کی ہے۔ گیلے کوڑے (wet litter) کا معیار نمی کی سطح کو 40% بڑھانے کا باعث بنتا ہے۔ اور کثرت سے ہضم نہ ہونے والے ذرات کوڑے میں موجود ہوتے ہیں۔ کوڑے کے خراب ہونے کے نتائج واضح ہیں۔ چھاتی کے چھالوں، اور فٹ پیڈ کے گھاؤں کے مسائل کا باعث بنتا ہے۔ مرغیوں کی آنتوں کی نالیوں میں کلوسٹریڈیم پریفرینٹس ایک کامنسل (commensal) جاندار ہے۔ اور جانوروں میں زندگی کے ابتدائی مراحل میں نوآبادیاتی (colonized) ہوتا ہے۔ *Clostridium perfringens* ایک

تحریر: ڈاکٹر ماریہ جیل، ڈاکٹر عائشہ خاتون، ڈاکٹر محمد کاظم سیسی ڈیپارٹمنٹ آف پیٹھالوجی، فیکلٹی آف وٹرنری سائنس، فیصل آباد

کلوسٹریڈیل انٹرائٹس پرندوں کی آنتوں کی نالی کو متاثر کرتا ہے۔ اور پولٹری کی صنعت میں نمایاں نقصانات کا باعث بنتا ہے۔ *Clostridium perfringens* کلوسٹریڈیل انٹرائٹس کا ایٹولوجیکل ایجنٹ ہے۔ اور یہ پوری دنیا میں موجود ہیں۔ اس انفیکشن سے لڑنا پولٹری سیکٹر کے لیے ایک مشکل چیلنج ہے۔ صحت مند گٹ فلورا کو محفوظ رکھنے کے لیے وقف شدہ مصنوعات (dedicated products) کا استعمال کرتے ہوئے حفاظتی عمل ایک بہتر حل ہے۔

برائمر (birds) کی عمر کے تیسرے ہفتے کے آس پاس، بڑھوتری (growth) میں کمی ایک اہم مسئلہ ہے۔ جو آنتوں کی خرابی سے منسلک ہے۔ دنیا بھر میں برائمر انڈسٹری میں کلوسٹریڈیل انٹرائٹس عام ہے۔ اور یہ اکثر ہوتا ہے۔ پولٹری انڈسٹری میں کلوسٹریڈیل پریفرینٹس انفیکشن ایک شدید کلیینکل انفیکشن (acute clinical infection) یا ذیلی کلیینکل انفیکشن (Subclinical infection) کے طور پر لگ سکتا ہے۔ برائمر جھنڈ (flock) میں، انفیکشن 50 فیصد تک شرح اموات کا باعث بنتا ہے۔ جو کہ 1 فیصد تک زیادہ نقصانات کا سبب بن سکتا ہے۔

نیکروٹک اینٹرائٹس کی علامات: پرندوں کا سست ہو جانا، نڈ ہال ہونا، جھرجھری دار پنکھ، اور چھوٹی آنت میں واضح میکروسکوپک (microscopic) زخم۔ نیکروٹک اینٹرائٹس کی طبی شکل (clinical form) کا پتہ لگانا آسان ہے۔ اور یہ برائمر جھنڈ (flock) میں حادثاتی طور پر ہوتا ہے۔ اور اس کا علاج کیا جاسکتا ہے۔ ذیلی طبی صورت (subclinical form) میں کلوسٹریڈیل پریفرینٹس آنتوں کے

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