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Demands for diesel decrease; increase for agriculture during Monsoon

AVN Report

KARACHI - It has been observed that the consumption of diesel has dwindled in the last few weeks as a result of massive rainfalls reported in the month of July-August. On contrary, the demand for agriculture has escalated. Having said that, in Karachi, the diesel consumption has tumbled to average 15,000 tonnes per day from 25,000 tonnes per day in the last month along with an abrupt rise in the fuel price.



As per the oil sector, the agricultural activities have come to a standstill in these drizzly months of July which is observed in almost every part of our country, this slashed the diesel demand. In other words, the need for diesel is directly related with the season of harvesting when the utilisation increases to run tractors, harvesters, threshers and other agricultural machineries. Thus the sales of diesel surge.

However, an employee from a top notch firm reports that the rains are pouring throughout the country and halting the agricultural activities. He also added that due to very little consumption it has led to diesel stockpiles of upto 60,000 tonnes in the country which will be sufficient for the next few days. Interestingly, another factor that may have lessened the diesel demand is its price which has escalated substantially. contribute more to its decline, not just because of a halt in agricultural activities but also because of a slow down in the transport sector. As a matter of fact the petrol consumption has also slumped by 10,000 tonnes per day to 20,000 tonnes compared to 30,000 tonnes previously. The officials also state that because of price hike of petrol, people are not bringing out their vehicles on the roads which automatically cuts back on fuel expenses. of now, the price of diesel stands at Rs. 236.96 per litre and that of petrol is Rs. 231.14 per litre. Due to this poor consumption of both petrol and diesel, Pakistan will have to reduce the costs of petroleum products in the coming months.

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Digital Producer:
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Business Executive:
Haroon Rashid (Islamabad: 0300-9710774)

Designing & Layout:
S. M. Sadiq Ali

Karachi : Mahmood Centre BC-11, Block-9 Clifton
Phone : 021-35872289, 35834932, 35833172
Fax : 021-35836940

E-mail: irfan@medicalnewsgroup.com.pk
mkt.dn@medicalnewsgroup.com.pk

Lahore: 1485 C-5/4 Alluddin Road, Cantt.





Islamabad : Phone : 0300-9710774
Website: www.avnpk.com

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UAE to invest \$1 bn in Pakistani agricultural sector

AVN Report

ISLAMABAD - The United Arab Emirates plans to fund the various economic sectors of Pakistan with an amount of \$1 billion as reported by the UAE-run agency WAM, on Sunday, 7th August 2020, the Pakistani Prime Minister took upon twitter to thank the President, Sheikh Mohammad bin Zayed Al Nahyan for their investment plan for Pakistan. The historical relationship between UAE and Pakistan has its roots back in 1971. With Pakistan recognizing it primarily before anyone when it was founded, their symbiotic ties have only strengthened ever since as UAE continues to provide aid to the country. As reports claim, in 2019 the trade between Pakistan and the UAE amounted to \$8.19 billion making UAE a substantial trading partner and investor for Pakistan. Since Pakistan is in a severe financial decline, the Pakistani Administration decided against resuming its loan program with the Internal Monetary Fund in July. A move to stabilize the declining economy of Pakistan. Through the current United Arab Emirates investment plan, UAE aims to continue to



strengthen its liaison with Pakistan by investing in various state sectors, including gas, e-commerce, financial service, agriculture, biotechnology, healthcare, and logistics. One of the prime focuses of this investment plan is to revive the foreign investors' trust in the state to stabilize the deteriorating economy of Pakistan. To sum it up, it seems that the Pakistani economy finally has a ray of hope. The United Arab Emirates plan to invest in various fields in Pakistan does not only pave the way for the exploration of different investment and financial opportunities for the country, but it also encourages foreign investors to similarly invest their funding into Pakistan. Such investments and trust can gradually work towards the development of state sectors and be the source of hope for the declining economy.

A surge in imports of agricultural machinery

AVN Report

KARACHI - During the agricultural period of July-August 2021-22, flow in agricultural machinery and implements accounted for \$112.025 million. Whereas, during the same period of the previous year, machinery imports accounted for \$84.679 million only.

\$10.146 billion. During the period under analysis, agriculture has witnessed a surge in imports of about 7.63 per cent which accounts for \$10.920 billion as against the previous year. It is reported by the PBS data that Pakistan invested \$14.082 billion for imports of agriculture

analysis, there has been an import of 1,400,822 metric tonnes of fertiliser manufacturing worth \$845.539 billion. Plastic materials worth \$3.135 billion and medical supplies costing roughly \$4.063 billion have both been imported during the current period. According to the report



In Pakistan, every year in June and July, the fiscal year of agriculture ends and begins. Since the last fiscal year, agriculture machinery and innovations have witnessed a surge in imports. The last financial year ended on June 30th, 2021 and by then imports in agriculture machinery increased by 18.32 per cent in comparison with the imports of the preceding year. As per the Pakistan Bureau of Statistics, the previous year witnessed an import which accounts for

and other chemicals during the financial year 2021. Whereas, during the preceding year, \$9.299 billion was invested in imports. With this, during the current period, agriculture chemical imports have increased 51.43 per cent against the imports of last year. As per the reports of the previous fiscal year, there was an import of fertiliser manufacturing of 1,779,679 metric tonnes accounting for \$718.756 million. On the other hand, during the period under

estimates the country spent \$201.740 million on the import of 35,875 metric tonnes of insecticides which in comparison with the previous fiscal year was registered and accounted for \$188.988 million. A rise in the imports of agricultural gear and implements seems to indicate that as the year goes on, agriculture is also progressing. What the upcoming year will offer in terms of agricultural breakthroughs and funding is eagerly anticipated.



World Bank grants Pakistan \$200 million for agricultural development

AVN Report

PUNJAB - World Bank has allowed a hefty amount of \$200 million for the agricultural sector of Pakistan. The purpose of this grant shall be to encourage water-efficient farming methods, in order to support small farmers, incorporating farming techniques that build resilience to extreme climate.

Most of Pakistan's economy relies on the agricultural sector, exports form the back-bone of this particular industry. In the recent years, mild to severe droughts have emerged on the overall landscape of Pakistan. Water, has been a scarce resource preventing farmers to carry out their agricultural practices which consequently leads to an economic repression. The money will be allocated to the farmlands in Punjab, accounting for about 73% of the nation's food security. Punjab's provincial project, PRIAT (Punjab Resilient and Inclusive Agricultural Transformation Project) will be the flag bearer for these funds. Not only will the farming community be supported, but will also

be taught climate-smart farming practices leading to higher yield of crops to conserve water.

The Punjab agricultural policy of 2018 aims to:

- Enhance economic growth of Pakistan to sustain political freedom and economic wellbeing of its people
- Raise standards of living of the population in general and rural population in particular
- Maximize income and agriculture sector contribution to the national GDP and exports.

"The agriculture sector has a huge opportunity to both build climate resilience and improve economic conditions by generating access to domestic and international markets," said Guo Li, Task Team Leader for the project.

"PRIAT will help accelerate the government's efforts to transform the agri-food system through

market-oriented production activities that add value, increase competitiveness and generate higher incomes for farmers."

How will this funding improve the economic outlook of this sector?

In a few short years, it will approximately aid 190,000 small, family owned farms. 1.4 million acres of land can be reclaimed and irrigated supporting rural communities. For women it will provide small scale jobs as about 74% rely on agriculture for livelihood. This can reclaim failing cottage industries where labor is cheap and output of goods is minimal and seasonal farming may open job opportunities for women; weaving cotton fabrics, jam making etc.

In conclusion, one can only hope that the unfolding of this project builds the general foundation of the farming community in a positive manner. After all with the ever changing climate it's essential to adopt an eco-friendly lifestyle, this project aims to do just that.



Lumpy Skin Viral Infection in Cattle

M. Rafique

University of Veterinary & Animal Sciences, Lahore

Painda Tariq (Superior University Lahore)

Fajar Fatima (The University of Faisalabad)

Babar Ali (Bahauddin Zakariya University, Multan)

Background: Lumpy skin disease was first ever recorded in Zambia in 1929 as an epidemic. Essentially, it was thought to be the result of poisoning or hypersensitivity to the bites by the insect's after that more case's were recorded in the duration of 1943-45 in Botswana ,Zimbabwe and the Republic of South Africa. Now this disease fastly spreading in whole Asia including Pakistan as pandemic.

Introduction: Lumpy Skin Disease is a serious viral disease of cattle and water buffalos. This disease belongs to the most important class of POXVIRUS in which cutaneous nodules and lymphadenitis develop. Its pathogenesis

goatpox virus. Up to 98 species were found up till now.

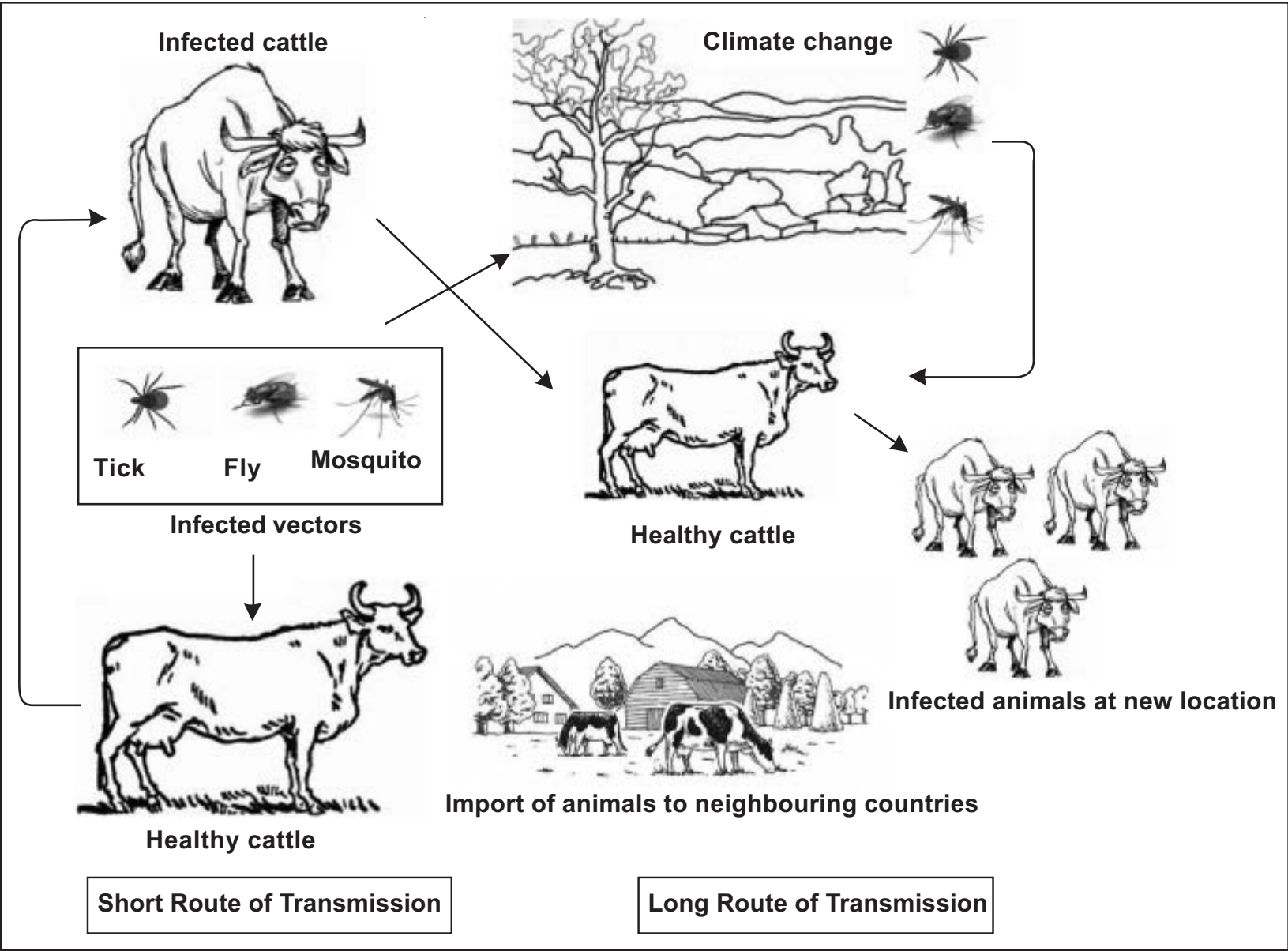
Transmission: The virus can be transmitted by blood feeding insect's e. g some specie's of mosquitoes or ticks infected saliva of the diseased animal is another potential route for the transmission of disease.

Clinical signs: Initially clinical symptoms of LSD involves the lacrimation, fever, loss of appetite , difficulty to move ,skin nodules appear after 20 days of disease. Mouth, respiratory ulcer is commonly occur. Swelling of legs is often seen. Skin nodules break and fall down after the 7 to 10 days of their first appearance. Lesions in the respiratory tract occur that leads to suffocation. Secondary infections occur that ultimately leads to death o f the animal.

Diagnosis: The disease can be diagnosed with the help of virus isolation and it's identification .Antigens can be tested by using

different combinations of agents(wound care sprays and antibiotics)we can prevent the spread of disease. The treatment of LSD is quite expensive and it doesn't assure the recovery. By providing quarantine to affected animals can prevent the spread up too limit. Vaccination (immunoprophylaxis)is the best way to treat the LSD.

Economic importance: According to the Latest Economic survey of Pakistan 2020-2021 Livestock contributes 60%towards agriculture. It is estimated that 5 million dairy farmers and meat sellers are affected by this fallout. Now Pakistan is going to import 4 million vaccines from different countries which is a great loss to Pakistan's foreign reserves. Rates of diseased Animals and overall purchasing also decreased due to impact on skin and meat of the animal. It shows LSD has adverse impact on Pakistan's Economy.



shows lesions present in internal organs and histology shows intracytoplasmic inclusion bodies in epithelial.

It is highly known infectious and widespread disease causing infertility and reduced milk and death of cattle.

The other livestock and humans does not get affected by this disease .

Causes: The main cause of this disease is the Genus Capri poxvirus belongs to the class poxvirus which is a sheep pox virus and

direct immuno fluorescent staining virus neutralisation or ELISA . Histopathology and PCR techniques may be used for the confirmation the disease. The disease can be confused with pseudo lumpy skin disease caused by herpesvirus (Bovine herpesvirus 2).

Prevention and treatment: There is no specific treatment for this disease. Symptomatic is the only easy to treat the LSD. Secondary bacteria infection can be prevented with the help of antimicrobial therapy. By using

Conclusion: LSD a viral disease of livestock spreading in whole Asia especially in Pakistan as a pandemic transmitted through mosquitos and ticks. Although not Zoonotic but animals (cattle's and buffalos) are severely affected causing infertility, reduced milk production and death. Elisa and PCR are used for diagnosis Prevention is only available with proper early vaccination. This disease has adversely affected the economy. Proper campaign and awareness are necessary to overcome this pandemic.

Outbreak of Bovine Ephemeral Fever (BEF) in Pakistan

By Muhammad Saqlain,
Usman Waheed, Muhammad
Adnan Saeed, Abdul Subhan,
Fahad Umer

Department of Pathobiology, University
of Veterinary and Animal Sciences Lahore,
Sub- Campus Jhang

Introduction:

Bovine ephemeral fever virus (BEFV) an arthropod borne rhabdovirus which is classified as the type species of the genus Ephemerovirus. It causes an acute febrile illness of cattle and water buffalo known as bovine ephemeral fever (BEF) or various other local names such as 3 day sickness, bovine enzootic fever, bovine influenza or stiff setke. BEF is non-contagious diseases and disastrous viral disease.

Epidemiology:

Bovine ephemeral fever has been described in many tropical and sub tropical regions around the world. It is enzootic and seasonally epizootic in Australia, Asia, Africa and the Middle East. An ephemeral fever resembling BEF was first reported in Pakistan in 1919 as a disease of cattle known locally as "Vil". It was noted that the disease occurred most commonly during the rainy season (July to October) and simultaneous outbreaks at widely separated locations suggested that it was insect borne. Disease occurred more frequently in Bos taurus/Bos indicus cross bred animals than in local breeds and the highest incidence occurred in older cattle. Its geographical distribution is mostly in tropical, subtropical and warm temperate regions and the pattern of disease is seasonal with outbreaks occurring from late spring to autumn.

Economic importance:

It gives huge economic losses to the dairy sector due to the sudden drop in milk production. It can be catastrophic for those areas which mostly depend on dairy milk for their livelihood, as drastic losses occur in milk production during infection. The economic impacts of BEF can be considerable and are due primarily to cessation of lactation in dairy cattle, loss of condition in beef cattle and the immobilization of water buffalo used for draught power. A recent study has estimated an average net loss of 175.9 kg milk per cow affected by BEF. BEF also impacts on trade in live cattle from infected



zones and there is some evidence that the risks of inter continental spread of BEFV through animal transport or vector translocation may be increasing.

Signs and symptoms:

Infection may be clinically unapparent or result in mild to severe clinical signs including a biphasic fever, profused salivation, ruminal stasis, depression, ocular and nasal discharge, paralysis of limbs, recumbency, muscle stiffness, muscle fasciculation, lameness, swelling of joints, anorexia, Sternal and lateral recumbency in cattle. The disease is characterized by rapid onset and rapid recovery, lasting only 1-3 days, but there are reports of prolonged paralysis and ataxia in some animals following the acute phase of infection. The most severe cases can result in mortality which may be due to exposure, starvation or pneumonia, but little is currently known about the direct cause of death. Morbidity rates can be very high (approaching 100%) and mortality rates are typically low (<1%). However, in recent years there have been reports from several countries of alarmingly high case fatality rates, sometimes exceeding 20%. Transmission of BEF infection:

1. Vertebrate host range: Clinical BEF has been reported only in cattle and water buffalo (Bubalus bubalis). Although, local and old age cattles are considered to be more susceptible to BEF disease. Cattle and buffaloes are the main species affected by Bovine ephemeral fever (BEF).

2. Vector borne transmission:

Competent vectors responsible for transmitting BEFV may be mosquitoes and Culicoides. Transmission of BEF through insect vectors has been assumed as the cause of the first occurrence of the disease in northern Australia in 1936-1937. A large body of evidence suggests that BEFV is transmitted by haematophagous insects. Various other factors also appear to implicate mosquitoes as the principal vectors of BEFV. It is possible that several species of midges and mosquitoes could serve as vectors when seasonally abundant. The transmission of the disease illustrates that it is sporadic in nature and is transmitted by Culicoides spp during heavy rainfall.

Diagnostic Tests:

1. Virus Neutralization Test (VNT)
2. Enzyme-linked Immunosorbent Assay (ELISA)
3. Immunofluorescence Assays
4. Complement Fixation Test (CFT)
5. Reverse transcription polymerase chain reaction (RT-PCR) assays
6. Real-time loop-mediated isothermal amplification (RT-LAMP) assay

Control and treatment of BEF:

1. Protective immunity:

Natural BEFV infection has been reported to result in durable immunity. There have been observations of multiple episodes of clinical ephemeral fever in the same cattle. A strong neutralising antibody response follows natural or experimental BEFV infection,

developing by the third day of clinical disease with titres increasing during recovery. It has been reported that specific neutralising antibodies last for at least 422 days following natural BEFV infection and that previously infected animals resist challenge for at least 2 years. There is also evidence that innate immunity is involved in both the immune response to infection and the pathology of disease.

2. Vaccines: Four different types of BEF vaccine have been developed to control and produce immunity against virus :

- (1) live attenuated vaccines, (2) inactivated vaccines, (3) sub unit G protein based vaccines, and (4) Recombinant vaccines. Live attenuated, inactivated and subunit vaccines are being used.

3. Transboundry control of cattle movement:

As viraemia is brief (3-5 days) and occurs soon after infection, the risks associated with the movement of infected cattle pertains mostly to rapid transport across relatively short distances and a brief quarantine period in a vector free area should be sufficient to eliminate the risk of introduction of BEFV with imported cattle. It is suggested that the livestock trade has been responsible for the inter continental transfer of the viruses, either in cattle or in vectors that may have accompanied them.

Treatment:

1. Rest, protection from the elements and the provision of feed and water will assist recovery. Laterally recumbent animals may be rolled periodically to prevent loss of circulation and muscle damage.
2. Force feeding is not advisable because of the risk of aspiration pneumonia due to an impaired swallowing reflex.
3. Non steroidal anti inflammatory drugs are effective in preventing the onset of clinical signs when given daily during the incubation period and can induce rapid recovery when given after the onset of clinical disease.
4. Clinical signs of hypocalcaemia (ruminal stasis, paresis, loss of reflex) can be treated by subcutaneous or intravenous injection of calcium borogluconate for proper recovery of animal.
5. Rehydration with isotonic fluids.
6. Vaccination

NAEGLERIA FOWLERI

A Killer in the Swimming Pool

By Abdullah Abubakar, Hafiz Muhammad Rizwan, Haider Abbas

Section of Parasitology, Department of Pathobiology, KBCMA College of Veterinary and Animal Sciences, Narowal, Sub-campus UVAS, Lahore, Pakistan

Introduction: *Naegleria (N.) fowleri* (Phylum: Percolozoa) is a freshwater, free-living amoeboflagellate, which is also called brain-eating amoeba. It is a thermophilic (heat-loving) organism and grows best at temperature of 115°F (46°C). It can also survive for a short period of time at a very high temperature. It cannot survive in salty water like oceans. It mostly inhabits in soil and warm water bodies like lakes, ponds, rivers, swimming pools (that are untreated and unchlorinated), hot springs, warm water discharged from industry, and aquariums. It does not transmit by drinking water contaminated with *N. fowleri*. It does not spread from one person to another. This parasite feeds on other organisms e.g., bacteria in rivers and lakes for its survival.

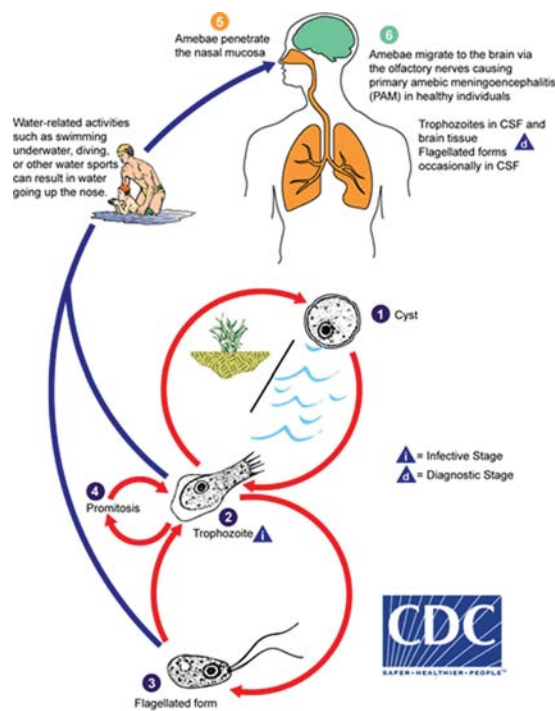
This parasite has 3 stages in its life cycle including cyst, trophozoite, and flagellate. However, the stage that enters the human body and causes the infection is the trophozoite. Trophozoites are 10-20 mm long having a nucleus containing a large karyosome surrounded by a halo. They are motile due to granular cytoplasm-filled round processes called lobopodia. It enters the human body, during swimming, through nasal route. From the nasal route, it moves along the olfactory nerve to the cribriform plate. From the cribriform plate, it reaches the olfactory bulbs, where they activate the innate immune system and destroy the CNS, and causes infection of the brain leading to its swelling. It causes a disease in humans called Primary Amoebic Meningoencephalitis (PAM), a devastating CNS infection, commonly known as Naegleriasis.

Symptoms: The symptoms develop in two phases:

Stage 1: Severe frontal headache, fever, stiff neck, nausea, and vomiting. It occurs within 1-2 days.

Stage 2: Meningoencephalitis, irritational behavior, coma, seizures, altered mental status, vomiting, confusion, lack of attention to the people and surroundings, loss of balance, hallucinations. It occurs within 9 days ultimately leading to death of the patient. Symptoms appear within 2-15 days, and death occurs within 3-7 days after the symptoms appeared. In the early stages, symptoms of PAM are similar to bacterial meningitis, that is why it confused with this infection.

Epidemiology: There are hundreds of millions of visits to swimming pools for recreational purposes but only 0-8 infections occur per year in the U.S. It shows that the infection rate is very rare. It can infect the human if contaminated water enters in the nose during swimming and enter the nose through tap water while cleansing the nose during religious practices. the infection rate mostly higher in



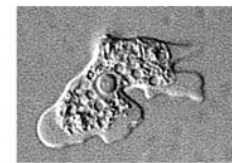
summer months like July, August, and September. The first case of *N. fowleri* was observed in Australia in the 1960s. With time, several cases were reported from different parts of the world. The majority of the cases were observed in Southern and Northern areas of the U.S. i.e., 138 cases till 2015. The risk of *N. fowleri* is low as compared to other diseases but the fatality rate is over 97%. Only 4 out of 151 patients of *N. fowleri* have survived in the U.S. from 1962-2020. About 60% of the cases in the U.S. are of people with age up to 13 and 80% of which are males.

In Pakistan, 1st case of *N. fowleri* was observed in June, 2008. The patient was a 30 years old male and he was previously healthy. He had a history of swimming in a river that was part of the domestic water supply of Karachi. He was referred to the Aga Khan University Hospital, Karachi with a 2-day history of high-grade fever, severe headache, and seizures. He had a fixed and dilated left eye pupil. Basal meningeal enhancement was shown by magnetic resonance imaging (MRI). Low glucose level (<5 mg/dL), high protein level (1,028 mg/dL), and lymphocytic pleocytosis (900 cells/mm³ with 85% lymphocytes) were shown by CSF analysis. Motile amoebic trophozoites were shown by wet films of Cerebrospinal fluid (CSF). A diagnosis of PAM was made and intravenous amphotericin B plus oral rifampin and fluconazole were used to treat the patient. But unfortunately, the patient died after 4 days.

A world-famous Naat Khawan Zulfikar Ali Hussaini, who was a citizen of Karachi, also died due to *N. fowleri* infection. He went on a recreational water activity with his family to a private farmhouse on July 25th, 2019. He died on 30th July, 2019. However, 146 cases were reported in Karachi until October 2019. Most of the cases were reported before Monsoon. The domestic water supply of Karachi also found to contains *N. fowleri*, which is mostly saline. It means that the strain of *N. fowleri* in Pakistan has developed resistance against a



Cyst stage



Trophozoite stage



Flagellated stage



saline environment.

Diagnosis: Early diagnosis is very critical in it, but there are no rapid tests present for it. It takes weeks to do a test of *N. Fowleri*. An autopsy can be done for detection of motile amoeba, *N. fowleri* nucleic acids, and/or *N. fowleri* antigen in CSF using Trichrome or Giemsa stain.

Prevention and treatment: This infection can be controlled by following these guidelines:

- Avoid Water activities in untreated, unchlorinated, warm lakes and swimming pools during summer months.
- Avoid jumping and diving into water bodies.
- Keep your head high while swimming or use nose clips.
- Use distilled, sterile, or boiled water for nasal rinses.
- Clean your water tanks periodically and keep them chlorinated
- See your doctor immediately if you feel the symptoms of PAM.
- The drugs that are used for its treatment are Amphotericin B and Miltefosine which are recommended by CDC (Centers for disease control & prevention).

Pellagra: Its signs and symptoms, diagnosis and treatment

By Karrar Hussain

Faculty of Veterinary and Animal
Sciences PMAS Arid Agriculture University
Rawalpindi

Abstract: A condition caused by a lack of niacin and/or tryptophan in the diet, characterised by a sun exposed dermatitis that starts as an erythema with pruritus and may progress to vesiculation, but more commonly becomes chronic, rough, scaly, and itchy. A broad zone of dermatitis with the production of crusts as a result of bleeding. The neck is usually encircled. It's possible that the digestive tract and nervous system are involved. Diarrhoea with frequent watery and often bloody faeces, glossitis, stomatitis, gastroenteritis, anxiety, depression, tremor, and decreased or absent tendon reflexes are also symptoms of encephalopathy. In extreme situations, a diet high in non-alkali-treated maize has long been linked to the condition.

Introduction and scope:

Pellagra is caused by a diet lacking in niacin and/or tryptophan. The first recorded reports of pellagra date back over 250 years. Following the introduction of maize as a major crop from its native home in the New World, the disorder became associated with maize-based diets and was seen to spread throughout Europe. Throughout the 1960s and 1970s, the disease was still considered a public health issue in many maize-consuming African and Asian countries. During the 1970s, more than 100,000 cases were reported annually in South Africa. Apart from isolated cases documented in rural health clinics during times of drought and food scarcity, the syndrome has only lately been identified as a substantial concern among food aid dependent people during times of food crises and refugee resettlement.

History of Pellagra

outbreaks: In 1763, the

Spanish physician Don Gaspar Casal published the first description of Pellagra. documented all of the symptoms and linked the condition to the unbalanced maize-based diets of poor peasants in Spain's Asturias region. In 1771, the ailment was given the term pellagra, which means "rough skin," after a description from Italy. Throughout the nineteenth century, the disease was widespread in Italy; for example, figures from 1862 report 39 000 cases in Lombardy in a population of 2.5 million (Carpenter, 1981). Pellagra became a major problem in many southern portions of the United States after 1906, impacting tens of thousands of people. The vast majority of the victims were women, mostly housewives who had previously been in good health. The sickness predominantly affected the poor. people whose diet consisted primarily of maize, the cheapest grain available, supplemented with salt molasses, pork, and lard There were roughly 16 000 cases in eight states, according to records. From 1907 to 1911, the death rate in the South was 39.1%. It was the biggest cause of death in the United States. Institutions for the crazy between 1930 and 1933, Pellagra's popularity plummeted, owing to improving sanitation. The country's agricultural and economic situation. Pellagra outbreaks occurred after maize was introduced to Europe from its native New World. It extended from Spain to Italy, France, central Europe, Romania, Turkey, Greece, and other regions of Europe. Pellagra was still considered a public health problem in many countries in the 1960s and 1970s, including Egypt (Barret-Connor, 1967; Hanafy et al., 1968); southern Africa in countries like Lesotho and Malawi during the 'hungry' season from October to February, affecting up to 15% of the population (Aykroyd, 1971); and South Africa, where 50% of Bantu who were examined in

clinics for a variety of diseases presented with skin manifestations (Gopalan, 1969; Aykroyd, 1971). The nearly complete eradication of pellagra as an endemic health condition in recent years can be linked to a general rise in the level of life of small farmers, as well as greater dietary diversification. While pellagra is often associated with maize eaters, it has also been linked to other diseases reported in jowar-eating folks (Sorghum Vulgare). Pellagra in its endemic sorghum form, Poor farm labourers in Hyderabad were described as eaters (Gopalan and Srikantia, 1960). Sorgh Vulgare is widely consumed, especially in Africa, and it was widely cultivated in the United States. The eighteenth century in Europe, Apart from the epidemic mentioned above, there appears to be no record of pellagra in sorghum eaters. Pellagra, along with other nutritional deficiencies, was recently discovered and reported among Bhutanese refugees in Nepal who ate a polished rice-based diet.

Sign and symptoms; clinical manifestation of Pellagra

Skin Lesions: The "pellagra" (dermatological alterations) are frequently the most noticeable. The erythema, which looks like sunburn and is symmetrically distributed on

the parts of the body exposed to direct sunlight-the backs of the hands and forearms up to the rim of the sleeves ("pellagra gloves"), the feet and legs up to the edge of the trousers or skirt, the forehead, and on the nose and cheeks in a butterfly distribution-begins the lesion. The chin-shadowed front side of the top portion of the neck escapes, but the lower part of the neck and upper part of the chest are affected by the width and shape of the shirt's neck ("Casalsnecklace").

Gastrointestinal lesions:

Nausea, increased salivation, a burning sensation in the epigastrium, and diarrhoea are common symptoms of Pellagra. The tongue is bright or reddish red in colour and swollen, and the mouth is painful. Niacin deficiency causes cheilosis and angular stomatitis, albeit these symptoms may be exacerbated by a concurrent riboflavin shortage. Chronic gastritis and diarrhoea are symptoms of inflammation in the gastrointestinal system; bacterial infections can worsen the diarrhoea and induce anaemia.

Diagnosis of Pellagra:

Pellagra is a complex condition that frequently involves protein and other vitamin B-complex components besides niacin, such



as riboflavin and pyridoxine. The potential of the amino acid tryptophan to act as a precursor of nicotinic acid complicates niacin

Continued on Page 13

Smart Farming: The Future of Agriculture

By Mehrosh Shaikh

Introduction

Throughout the course of history, agriculture has gone through rapidly changing phases like Darwin's theory of evolution, systematic cropping, the green revolution in the 1950s and the growing usage of fertilisers. Now with the growing populace, the existential question going about in the air is how can the entire population be fed? The concept of Smart Farming is the answer to this question and possibly another phase for Agriculture. Smart Farming is the idea to minimize human labour with the use latest technologies of IoT, robotics, artificial intelligence, drones, and other fully

optimized gadgets to ensure the enhanced quality of agricultural products. Here are all the basics you need to know about the future of Agriculture - Smart Farming.

How does Smart Farming work?

Smart Farming requires efficient and highly equipped smart gadgets like aerial vehicles, robotics, and other electric motors for the provision of systematic farming. Among the major technologies used by farmers are:

1. Aerial motors or drones with cameras specifically designed to find, detect and identify

- objects are utilized to calculate and observe the atmosphere, crops, lands, and soil status.
2. With the emergence of decision-tree models, farmers can make predictions by carrying out a survey which helps in determining plant, animal and crop abnormalities.
3. Fertilizers and pesticides are sprayed in a targeted manner with the help of an electric motor.
4. These farming technologies also efficiently harvest and pick up fruits with the help of mechanical grippers.

With such advanced technologies, farmers are given the opportunity to collect, gather information and solve other issues in a time-efficient accurate manner.

Benefits of Smart Farming:

Technological advancements have proved to be a revolutionising factor in every field. In agriculture, Smart Farming can also be a revolutionary factor for the benefits it offers.

Targeted agriculture:

Targeted Agriculture referred to as precision farming is a Smart Farming idea which focuses solely on the plant, and cattle instead of the land. Plants and animals are given pesticides

and fertilizers in small doses as per their requirement. The harvesting of fruits and seeds is also done in an efficient and time-sufficient manner.

Cost-efficient and Land protection:

With the fertilizers being sprayed in a targeted manner, the regular cost is largely reduced. The conventional agriculture machine weighs double than of electric motors which are significantly lightweight and also have a positive impact on the soil.

IoT-driven Greenhouses:

Smart Farming can determine the climate accurately through sensors and adjust the parameters per the environment and the requirement of the crop. The targeted application of



fertilizers and pesticides will decline the emission of greenhouse gases.

Conclusion:

By the end of the century, the stats of population is expected to reach 10 billion. Keeping that in mind and the factor of food production, Smart Farming can prove to be a sustainable future for Agriculture. Smart Farming is unconventional and diversified which helps not only with monitoring the land but also monitors the environment, crops, plants, cattle, and the requirements of the entire system paving the way for profitable, error-free, time-saving, climate-friendly and game-changing agriculture.

Can AI help us communicate with animals?

By M Shaikh

Introduction:

Once in our lifetime, we have all talked with an animal. Maybe it was letting a parrot know that they are doing a great job or, maybe, it was letting a dog know how perfect of a dog they are. We have all been there. Throughout history, animal communication has been a subject of interest to scientists and researchers. Scientists have been researching ways to decode animal communication. Each time we use a google map, there is a software robot assisting us - and that exact tool is an artificial intelligence machine working behind the curtain which helps us in identifying destinations and routes. This exact simulation of human intelligence is the tool scientists are aiming to use to detangle animal communication and also to talk back with them. Conventionally, animal communication appears to be non-complicated as compared to human language, but in actuality, it is far more complicated than we can think. Animals tend to communicate through different modes of

communication. Like, a rhesus monkey tends to make a louder scream when confronted with another animal and various primates produce distinct calls to signalize an approaching predator. Bees do a symbolic dance to tell other bees the

location of the food and prairie dogs signalize an approaching human through the identification of their clothes. Research has proven that a captive chimpanzee could understand when told to place the toothbrush on the blanket and would complete the task, whereas dolphins also obey verbal commands. These instances prove that animal

communication is semantic - a requirement that ticks the box of human language. the only one which does not tick the said box is that - animal communication is not reciprocated verbally.

AI & Animal

Communication:

Elodie Briefer, an associate professor at the University of Copenhagen co-developed an algorithm which helps in determining whether the pig grunts are a sound of negative or positive experiences. The process of using

another initiative led by the Wild Dolphin Project is working to detangle the sounds made by whales by using the Natural Language Processing method. While there are no current significant results/evidence of AI helping in communicating with animals or decoding their language, there has been a significant amount of research going on in this area which gives way to the possibility of AI decoding animal communication. The biggest challenge is that even after we build a language model with the help of machine learning, it can still appear incoherent to us. To overcome this, one of the important things is to connect the context with the sound or action of the animal. Like Con Slobodchikoff who recorded both - the approaching predator and the prairie dog's signal. This helps in distinguishing between each signal and its meaning.

Conclusion: With the emerging technology, if we overcome these challenges, we can then successfully discover and decode the animal communication, interpret it and have meaningfully recursive conversations with the animals.



Beneficial effects of seasonal fruit (Plums): Its significance in our life



By Dr Maria Jamil
Department of Pathology, Faculty of Veterinary Science, University of Agriculture, Faisalabad

Plums are well-known as Alu Bokhara. Plums belong to the family of almond, peach and nectarine. They are also considered as "drupes" fruit that having hard stone pit surrounding their seeds. Dried plums are known as prunes. Don't peel the plums before eating, because its peel rich of antioxidants. From diabetes to obesity, it helps to reduce obesity and maintain blood sugar level. You must have eaten a lot. It is a good source of vitamin A, C and beta carotene. This fruit comes in the summer. Sour-sweet plum in taste is enrich of several nutrients.

"Plum is the secret of good health, eat daily"

Wonderful health benefits of plums:

- It helps to prevent heart diseases, cancers, influenza due to flu-virus A, hair fall and high cholesterol.
- It helps to prevent neurodegenerative disorders as it is rich in vitamin B6 and improves concentration and sleep. Regular eating of plums support to reduce the threat of cancers along with heart and bone disorders.
- Dried plums helps to reduce weight, obesity, it is a good source of fiber, and helps to control appetite.

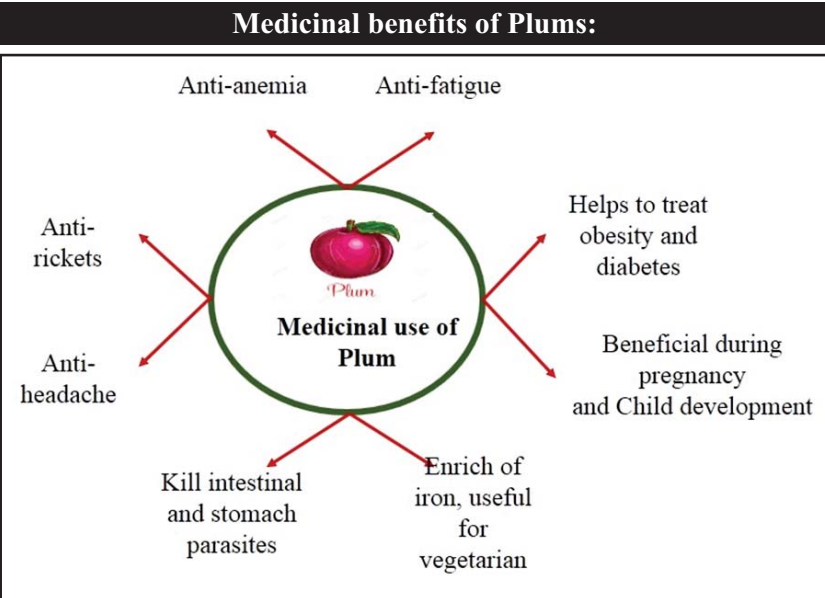
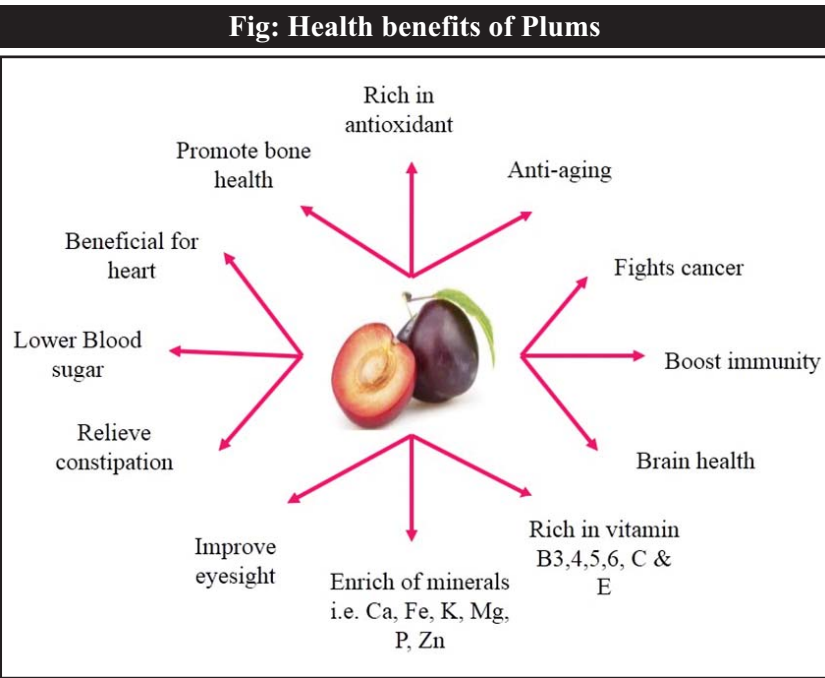
➤ Dried plums helps to prevent bone loss in osteoporosis and postmenopausal women. It support to keep bones strong due to the nutrient present in plums.

The phytonutrients exist in plums also support to prevent osteoporosis in women.

Regular eating of plums help to control blood pressure and

cholesterol.

- Eating of plums help to control sugar because carbohydrates are high in plums, it also having fibers and decrease the process of absorbing carbs. Due to this sugar level don't enhances even after the consumption of food.
- It helps in constipation and cleanse your intestine by killing intestinal parasites along with kill the stomach worms.
- Good fruit for pregnant women as it relieves constipation, helpful in digestion and enrich of vitamins and minerals.
- It act as detoxifier, anti-Rickets, anti-fatigue, anti-anemia, anti-headache, anti-sore throat and energy enhancer.



Note: These are the remarkable benefits of plums, by regular eating of plums helps to avoid several disorders.

Beauty benefits of Plums:

There are the marvelous benefits of plums in our health and beauty. Plums are delicious juicy fruit and accessible in a variety of color. Fresh fruit is known as plums and dried fruit is known as prunes. Plums are enriched with several nutrients i.e. vitamin A, C, K, E, B1, B2, B3, calcium, potassium and zinc. Plums are high in dietary fiber and low in calories. Due to these nutrients plums are good for health, skin and hairs. It helps to keep wrinkles at bay. Plum is useful for the skin. As it having antioxidants and helps in making the skin shiny and healthy. It heals wound and damaged skin faster including old scars. Apart from eating plum, it may also be used by making a face pack. For this, mash 1 plum and make a paste by mixing 1 teaspoon of gram flour and 1 teaspoon of honey in it and use this paste on your skin.

Pellagra: Its signs and symptoms

Continued from page 09

nutrition even more and the varied biological availability of vitamin-bound forms in meals. The most important criteria, Pellagra is diagnosed by: A history of insufficient dietary niacin and tryptophan, an amino acid that is a precursor to niacin, nicotinic acid (NA) However, when it comes to niacin nutrition, dietary surveys might be deceiving. If not all factors are taken into account, clinical signs and symptoms of pellagra. The most common biochemical markers are urinary excretion levels of niacin metabolism products. Frequently N1-N1-methylnicotinamide 2-pyridone and -MN).

Prevention and treatment:

While laboratory analysis revealed no significant differences in the nutritive properties of maize and other cereals in the 1800s and early 1900s, some authorities advocated for reducing maize production and replacing it with wheat, barley, and other cereals on the grounds that maize was less nutritious. Maize caused pellagra in some way. One of the popular ideas in the past was that maize contained a poison that induced pellagra. In 1910, the Italian government established rural bakeries to provide low-cost wheat bread to the general public. Maize was their major food. These small-town bakeries probably contributed significantly. In Italy to pellagra prophylaxis (WHO, 1970). Pellagra had a strong tendency to reoccur in the same persons year after year. This happened largely in the late spring and early summer, implying a link with poverty and a lack of nutritional foods because the diet was most likely restricted during the winter season; people affected ate little milk, meat, and other animal-derived items. Furthermore, the occurrence of pellagra in the spring and summer was



typically attributed to the skin rash being triggered by greater sunlight. Although there were several views regarding what caused pellagra, there were few differences about how to cure the disease. A well-balanced diet rich in milk and meat was unanimously acknowledged as an important component of treatment.

Conclusions and recommendations

Only a few pellagra outbreaks have occurred in the last ten years. Each of these occurrences occurred among emergency-affected populations who rely on food assistance, such as refugees, returnees, and internally displaced individuals. In hindsight, these events may have been predicted. Breakouts depending on the niacin content of the affected people's emergency general ration populations. The fact that these epidemics could not be predicted or prevented revealed the severity of the problem. Food security monitoring and assessments were inadequate at the time. In many emergency programmes, however, general meals do not include enough micronutrients. Despite this, populations do not show overt clinical signs

of vitamin deficiency. The obvious reason for this is that people have access to alternative food sources. It's important to remember that it's not always possible to know whether additional (non general ration) food sources are available to an emergency-affected community. Due to insecurity or population dispersal, comprehensive needs evaluations may be challenging. As a result, determining whether a community is completely reliant on the general ratio and hence at risk of micronutrient deficiency disease can be challenging. According to the WFP/UNHCR Memorandum of Understanding (WFP March 1997), fortified blended foods should be made available to emergency-affected communities who are completely reliant on food assistance. Basic rations (generic rations plus supplementary food sources) should be checked on a regular basis. Where maize is the predominant cereal consumed for niacin content This would call for Food basket monitoring at the household level (post distribution). When there is a definite niacin shortage in the basic ration and danger of insufficiency, surveillance mechanisms for micronutrient insufficiency should be put in place right away.

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Mehmood Centre, BC-11, Block-9, Clifton-5, Karachi

Tel: 021-3587 2289, 3583 4932, 3583 3172

Fax: 92-21 35836940

Email: irfan@medicalnewsgroup.com.pk
mkt.dn@medicalnewsgroup.com.pk

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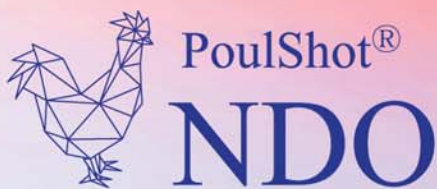
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بقیہ: خیبر پختونخوا میں ڈینگی پھیلنے کا خدشہ، محکمہ صحت فنڈز کا منتظر

محکمہ صحت نے باضابطہ طور پر محکمہ خزانہ سے فنڈز جاری کرنے کی درخواست کی لیکن وہاں سے کوئی جواب نہیں دیا گیا۔ پاکستان میں ڈینگی کے پھیلاؤ نے نیا ریکارڈ قائم کر دیا: فنڈز کے اجراء میں زیادہ تاخیر نے نوشہرہ اور خیبر سے دیگر اضلاع میں ڈینگی بخار کے پھیلنے کے خدشات میں اضافہ کر دیا ہے۔ خیبر اور نوشہرہ میں بلاتاخیر بیماری کو روکنے کی کوشش نہیں کی گئی تو دونوں اضلاع میں مریضوں کے ہسپتالوں میں داخل ہونے اور اموات میں واضح اضافہ ہوگا۔ باختیار لوگ کووڈ 19 اور پولیو وائرس کے خلاف اقدامات میں 'انتہائی مصروف' ہیں، اس کے لیے وسائل فراہم کر رہے

ہیں جبکہ اس دوران ڈینگی کو مکمل طور پر نظر انداز کر دیا گیا ہے۔ ڈینگی پر قابو پانے کیلئے آسٹریلیا ٹیکنالوجی استعمال کرنے کا فیصلہ: چیف سیکریٹری کی ہدایت کے مطابق ڈپٹی کمشنر نے انسداد ڈینگی مہم کے لیے متعلقہ ٹی ایم ایز اور ڈبلیو ایس ایس پی کا تعاون حاصل کیا لیکن فنڈز کی کمی پھجوروں سے پھیلنے والی بیماری کے خلاف بھرپور کریک ڈاؤن میں رکاوٹ بن رہی ہے۔ صوبے میں ڈینگی کے سب سے زیادہ مریض قبائلی ضلع خیبر میں سامنے آئے جن کی تعداد 88 تھی جبکہ پشاور میں 80 اور ہری پور میں 50 کیسز رپورٹ ہوئے۔ ڈینگی کے بڑھتے ہوئے کیسز میں کوئی کمی نہیں آرہی جبکہ حالیہ موسمی صورتحال کے باعث اس کے پھیلاؤ میں مزید اضافہ کا خدشہ ہے۔

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خیبر پختونخوا میں ڈینگ کے 247 نئے کیسز رپورٹ، پشاور سب زیادہ متاثر فروری میں صوبائی چیف سیکریٹری ڈاکٹر

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محکمہ صحت نے جون میں ڈینگ کے 38، جولائی میں 103 اور اگست میں 177 کیسز ریکارڈ کیے، رپورٹ شدہ کیسز میں سے زیادہ تر خیبر، پشاور، ہری

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محکمہ صحت کو ڈینگ سے بچاؤ کے طریقوں کے بارے میں آگاہی پھیلانے اور فیوگیشن اسپرے کرنے کے لیے فنڈز کی ضرورت ہے جبکہ صحت کے شعبے سے وابستہ افراد کے پاس ڈینگ سے



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