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# Deadly floods impact agriculture in Pakistan


## AVN Report

**KARACHI** - Deadly floods inundate agriculture throughout Pakistan, destroying farmlands, wiping away crops and leaving people without shelter and necessities. A surge in flood crisis is evident now with the agriculture sector being particularly hard hit. As per the official stats, the aftermath of deadly floods has left a terrible wake across the nation. Along with rice and cotton crops, onions and tomatoes have also been damaged. The food security warns that wheat planting is also at risk in the coming months - something which disrupted cannot be afforded worldwide.

Following Russia's invasion of Ukraine, the cost of basic foods increased dramatically across the globe. It is estimated that the current flood crisis could cost Pakistan's already unstable economy at least \$10 billion. Hence, the damage to agriculture can increase the nation's need for imports. With a rate of highest rain spell in the last few years, Pakistan has faced the consequences of climate change the most. There have reportedly been 1200 fatalities, a third of the nation is currently underwater, and agriculture, which makes up 5 per cent of the economy, has been severely affected.

Continued on Page 15

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# \$10 bn loss in agricultural sector after August rains

## AVN Report

**KARACHI** - Province Sindh has suffered a USD 1.6 billion (Rs. 355 billion) loss, while the Federal government has experienced a USD 10 billion loss due to torrential rains and floods, which further caused extensive damage to agricultural crops and economy.

The massive flooding in Pakistan tremendously affected many lives. Inflation is predicted to increase to between 24 and 27 percent this financial year, with a pinnacle of 30 percent, as the flood-related economic losses in Pakistan have increased from USD 10 billion to USD 12.5 billion, which is roughly equivalent to 3 percent of the country's Gross Domestic Product (GDP).

The impact on agriculture growth was significantly impacted by the after effects of floods. The value addition of agro economic expansion in the range of Rs 500 billion could be dropped in the current year due to the financial constraints of the country. Due to the severe consequences of the natural disaster, the growth target for the agriculture sector and the services industry were both strongly affected.

In a recent interview, Sindh CM Advisor on Agriculture, Mr. Manzoor Wassan stated that the majority of the cotton crop on more than 1.4 million acres, rice on 602,120 acres, and dates on 101,379 acres have already been devastated. Furthermore, approximately half of the sugarcane crop on 729,582 acres has also been affected. Above mentioned crops along with various other crops like onions, tomatoes, chili, Kharif vegetables, sesame, inclusively caused a damage of Rs.109.347 billion on the economy due to the heavy rains. In response to a question, he clarified that sowing wheat, which was due in two months, would be extremely difficult. The farmer's fields



have been completely waterlogged and the water is not expected to be drained out in the next two months, which was the ideal time for the sowing of wheat crops.

He explained that the farmers' who had suffered substantial losses would be compensated via monetary and agricultural funding. The revenue department will temporarily suspend revenue charges for the Kharif season 2022. New interest-free loans for rain-affected areas will be offered on favorable terms, and agricultural loans will be made publicly available to growers in rain-affected areas during Kharif season this year.

Date palm growers, according to Mr. Wassan, had lost their entire crop. It has been envisioned that they receive cash

compensation equal to 50% of their crop value. He further stated that a compensation package for the remaining crops damaged by the torrential rains, including seed, fertilizer, and pesticides, could be announced on a 50 percent input cost basis.

The country's economic management is facing the most complex situation, as floods devastated the country's road and communication networks. Not only that, an unprecedented loss of houses, human lives and millions of hectares of crops has left the policy makers to rethink their strategies. Both the national and provincial government officials plan to take major steps to rejuvenate and improve the current situation of the flood affected areas.

## Export of donkey skins camouflaged as salt, halted

### AVN Report

**KARACHI** - Custom officials have halted the export of donkey skins to China under the disguise of salt and handicrafts. Investigations on the issue have begun.

The officials are yet to confirm the location of the meat of the donkeys. In the meantime, Khan Ullah Masood, owner of Khan Traders, has been arrested on account of the attempt to smuggle donkey skin to China. The First Information Report (FIR) regarding the incident, as stated by the South Asia-Pakistan Terminal Customs Appraisal Officer, Muhammad Ibrahim Palijo, the consignment was set to leave for Hong Kong. However, at the investigation of documents, it was revealed that the consignment was in fact not salt and handicrafts, but donkey hides. The consignment was to be exported by Khan Traders, at their office in Landikotal. The FIR confirmed that about 9,659kg of donkey skin was recovered from the container concealed by Khan Traders, set to arrive to the consignee Kashmir Kashamai Ltd Charter Win International Logistics Limited Jockey Club Road, Hong Kong.





# “Use of Kitchen Waste (Kw) in Poultry”

By Dr Erum Bughio

Assistant Professor, Department of Poultry Production, Shaheed Benazir Bhutto University of Veterinary and Animal Sciences, Sakrand, Sindh, Pakistan

In developing countries like Pakistan, feed prices are continuously increasing due to increased demand of grains, so, there is a dire need to find relatively economical nutritional sources, especially for the backyard type chickens to mitigate the impacts of rising input prices. Backyard poultry is one of most important segment of poultry industry. The backyard poultry is a valuable asset to local populations as they contribute significantly to food security, poverty alleviation and the promotion of gender equality, especially in disadvantaged groups in less favored areas.

Among backyard rural poultry Naked neck is one of the most preferred breeds for rural poultry farmers. Extensive type of production system is widely applicable in rural areas of Pakistan (Sadef *et al.* 2015) but higher cost of production makes this extensive system of rearing unviable to run the poultry business. However, there are several ways to reduce the cost of production such as reducing the feed cost by introducing the wastes. Every day the heaps of household kitchen waste are being produced in heavily crowded areas (Kuo and Cheng 2007) It is the collection of discarded material from the restaurants, hotels, household kitchens as well as food industries (Li *et al.* 2009) A systematic approach especially regarding the feeding practices of rural/backyard type chicken's needs to be adopted to improve the livelihood of resource-poor farmers as well as to improve their household economics along with a significant contribution towards overall food security. There are huge volumes of such discarded materials from the homes daily and its handling and disposal is a

major concern. Different organizations are raising awareness regarding the issue of discarded food material. However, it is not usually considered as good as to be utilized for human consumption and wasted to spoil. Mostly such food waste is produced from the consumers at hotels, hospitals, cafeterias, and household level (FAO, 2014).

According to a survey, 40 per cent of cooked food is wasted in Pakistan and this value is even higher i.e., 50%, all over the world (Anonymous, 2016). Discarded material may be of 15 different types in which the household kitchen waste accounts for 43-68% (Ilyas *et al.* 2017). It is used as an alternative source of feed in pig rations, without any harmful effect, due to its high nutrient profile and favorable effect on daily weight gain. Such discarded food items are economically cost-efficient and effective feeding regimen, to be used in poultry diet after collection from different areas in huge quantities (Saikia and Bhar 2010). kitchen waste (KW) contains Carbon, Hydrogen, Oxygen, Nitrogen, Sulphur, and Chlorine elements (46.11, 6.89, 37.80, 3.19, 0.29 and 0.21 percent, respectively) (Li (2016) and its chemical analysis showed that it is enriched with nutrients such as high in moisture, lipid contents, organic matter, and salinity Boda (1990) and FAO (1993). kitchen waste from various sources can have significant variations in its composition. The average nutrients of kitchen waste contain dry matter (DM), organic matter (OM), ash, crude protein (CP), ether extract (EE), crude fibre (CF), nitrogen-free extract (NFE), MJ kg<sup>-1</sup> DM (Gross energy), MJ kg<sup>-1</sup> DM (Digestible energy) (i.e., 3.16, 92.1, 7.9, 17.5, 20.1, 3.6, 50.9, 87.8 and 23.9), respectively.

In countries like the USA, Japan, China and Korea, kitchen waste is being widely used in animal, poultry and aquatic feed,



production of bio-gas for energy and as fertilizer for agricultural purposes. China produces nearly 30 million tons of discarded household wastes (KW) every year (Li, 2016). Bangladesh is consuming kitchen waste as a potential source of biogas as well as production of energy. Kitchen waste is rich in nutrients, therefore, widely used as animal feed, fertilizer and as a methane source. It is also reported that if the production of kitchen waste is not reduced or its utilization did not increase in the coming years, it will lead to an adverse effect on the environment (Nellemann *et al.* 2009).

The UN Food and Agriculture Organization (FAO) estimated that globally edible portions of food are wasted along with raw materials before reaching dinner plate (FAO, 2011). Quite simply, this means that a huge amount of food is produced than actual need. KW contains an ample amount of protein, therefore, widely used as raw material for the production of livestock, poultry, and aquatic feed. There are also some economic benefits, for example, it improves the immunity, nutrition, digestibility, growth, production, reproduction, and breeding of animals. It reduces the methane ratio from land and makes it fertile for agriculture purposes.

In the USA, China and Korea, the main theme behind this is to improve the village poultry and revenue by the use of wastage in animal feed and to use it as a biogas source to produce energy.

kitchen waste is one of the leftover food materials Boda (1990). Its inclusion in the poultry diet ultimately reduces the overall feed cost of poultry along with those grains used in poultry feed which are consumed by a human being as a food source. Discarded food waste mostly contain grains, maize, bran, and scrapes of chicken meat which are full of nutrition and proteinaceous, but did not use for humans (Anjos, 2014). Kitchen waste/scrap may also help to raise rural poultry for egg and meat purposes. Grains give better growth production but due to their higher prices than kitchen waste they can be less economical whereas high nutritional contents of kitchen waste such as crude protein and energy value makes it an asset. In the early stage of feeding, for the betterment of growth, it could be used in the diet of animals and later its effects on their production, reproduction, and carcass meat quality (Nelmann *et al.* 2009). Whereas feeding kitchen waste up to 75% may enhance carcass traits, nutritional composition of meat and egg quality regarding egg weight, egg volume, yolk and shell weight and sensory attributes including taste and flavor of meat and eggs, overall antioxidants status and fatty acids profile as well as hatching traits. (Bugchio *et al.* 2021).

Most importantly, the use of kitchen waste is much more economical instead of commercial feed especially in backyard type naked neck chickens.

# Black Quarter - A Deadly Clostridial Infection

By Abdul Hanan Khan, Muhammad Jehangir Asghar, Dr. Muhammad Kashif  
College of Veterinary and Animal Sciences,  
Jhang, Sub-Campus, University of Veterinary and  
Animal Sciences, Lahore

**Synonyms:** Black Leg, Symptomatic anthrax, Emphysematous gangrene, Charbon

**Distribution:** The disease is wide spread in most of the tropical countries of the world. In some regions the disease may remain confined due to due to contamination of the soil surface where as in other parts the disease may be seasonal in distribution. The disease spreads rapidly following heavy rainfall. The disease is most commonly seen in areas where well developed cattle and sheep rearing programs are in existence.

In subcontinent (Pakistan, India, Bangladesh) the disease is sporadic in nature

**Etiology:** Black quarter is caused by *Clostridium chauvoei*, a gram positive rod shaped, spore forming, and toxin producing anaerobe. They are 0.6 micron in diameter and 3-8 micron in length. The spores are very much resistant to altered environmental condition. The spores are very much unaffected to hot, desiccation, disinfectants and can survive for up to years. The organism can be destroyed by 3% formalin in 15 minutes and by 2% bicarbonate of mercury in 10 minutes

False BQ may be caused by *Cl. Septicum* and *Cl. novyi*. These organisms may have role in the pathogenesis of the disease. But the importance of *Cl. septicum* as cause of the disease is questionable. In smears made from the surface of liver of infected guinea pig *Cl. chauvoei* remains as single bacilli or short chain while *Cl. septicum* forms chain. *Cl. chauvoei* has got one biotype and serologically homogenous whereas *Cl. septicum* has got four major antigenic groups. They produce potent endotoxin hemolyse erythrocytes and remain stable when exposed to air.

**Mode of transmission:** The disease spreads from contaminated soils. The contamination of soil is due to infected carcass which cause, pollution of the land. The organism gains entry through ingestion of infected feeds or possibly through contamination of wounds. The normal healthy animals may harbor bacteria in the spleen, liver and alimentary canal and thus the animals may excrete the organism through their faeces.

**Pathogenesis:** Ingested organisms are carried from the intestine via circulation to the skeletal muscles. The spores from the alimentary tract penetrate tissues from the places of breach of alimentary mucosa due to trauma. Some of the spores in the muscles are destroyed by phagocytosis and others remain latent for at least several weeks. Very often, well-formed

heavy muscles like muscles of gluteal region, loin, shoulders are affected. The infection may affect the muscles and intramuscular tissues. This is necrosis of the muscles and blood capillaries. Gases used to accumulate within the muscles fibers due to fermentation. Hemorrhages from ruptured capillaries may occur. The infection of the tongue, jaw, heart may be affected at a later stage due to dissemination of infection. The infection can also spread through peritoneum and pleura. Exotoxin is produced from the organisms which cause systemic reaction characterized by toxemia and local reaction characterized by necrotizing myositis. Severe myositis may cause death. Following death there is rapid tissue decomposition and spores are formed.

**Clinical Findings:** The incubation period is usually of 2-5 days. In cattle, first symptom is rise in temperature which may be as high as 106F but sometimes there is hardly any sign of fever. There is appetite is lost and rumination is suspended and there stiffness or lameness in one of the limb. Very soon characteristic swellings develops in one of the thick layers of muscles.

fibers. Due to hemorrhage affected muscles turns black. A rancid odor rises from the muscles. Heart muscles remain blackish red and there is parenchymatous degeneration. The liver, kidney and spleen shows yellowish foci and hemorrhage. The entire body assumes a bloated appearance. In some cases frothy bloody discharge natural orifices and prolapsed of rectum may be evident.

**Diagnosis:** In the field outbreak, a tentative diagnosis is made from the history, clinical observation and post mortem findings. In lab the disease may be diagnosed by the following methods

1. Microscopic examination of smear
2. Cultural test
3. Biological test
4. Fluorescent antibody technique

**Differential diagnosis:** Black quarter must be differentiated from anthrax, malignant edema and bacillary hemoglobinuria. Anthrax and bacillary hemoglobinuria may be enzootic in some places and may occur at any season of the year.

Bloating and bloody discharges may be seen in animals those die of these diseases in warm weather. But muscle crepitation and local swelling were absent in these animals which die in that season.

Moreover it should not be confused with sweet clover poisoning which also shows hemolytic swelling on any superficial part of the body but crepitation is absent in this condition.

**Treatment:** Satisfactory response has been reported from the use of penicillin, aureomycin and oxytetracyclin. Antibiotic is used in affected muscle. Penicillin is extensively used in and considered as drug of choice @2000 to 4000 IU per lb body weight per day. Crystalline penicillin may be used through IV route followed by procaine penicillin through IM route. Cephaloridine may also be

## Blackleg or Black Quarter

Most commonly the lesions are located on the thigh, buttock, shoulder, necks and lumbar region and more rarely in the inter-mandibular space or in the tongue. Swellings are hot and painful in the early stage and becomes cold and painless later. The muscle tissues are swollen, dark in color and turn dry, the structure get disrupted by gas pockets. Skin over the swelling becomes discolored and dry. There is a labored breathing and increased pulse (100-120/ minute). There may be abdominal pain. Finally, the temperature drops and the patient dies within 12 to 48 hours after manifestation of clinical signs.

**Lesions:** Lesions are limited to affected muscles. Muscles of shoulders, thigh and neck are usually affected. Lesions may be observed in tongue, diaphragm and myocardium. Large crepitating swellings are the most characteristics necropsy findings. Affected muscles are infiltrated with yellowish exudates. Gas bubbles accumulate between the muscle

used and newer approach

**Control:** Since disease is associated with soil so;

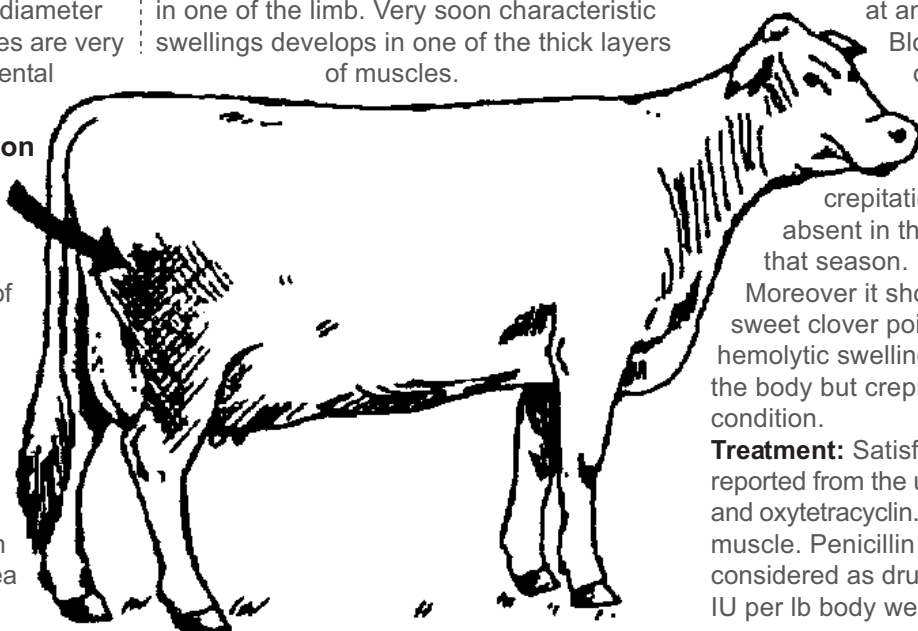
1. The dead animals should be burnt or buried deeply
2. The calves and sheep should not be allowed to graze in endemic pasture
3. All the animals in the endemic zones should be vaccinated

**Vaccination:**

1. Polyvalent vaccine should be used for prophylaxis against B.Q and malignant oedema in cattle and other ruminants  
Dose; Cattle and buffalo-----5ml  
Sheep and goat -----3ml

2. Black and quarter vaccine  
This is an inactivated suspension of *Cl. Chauvoei* through formaldehyde solution and adjuvanted with gel/ aluminox for double immunity.

Dose; to be given subcut before onset of monsoon annually. Cattle and buffalo 2.5ml.





# Mycotoxins in Ruminant Nutrition and Practical Strategies to Counteract their Negative Effects

By Saad Mumtaz, Kashif Nazir, Muhammad Bakhsh  
College of Veterinary and Animal Sciences, CVAS Jhang, Pakistan

Fungi produce toxic secondary metabolites. Hot and humid conditions in Pakistan favor these metabolites to thrive. The threat of mycotoxin-related poisoning of humans and livestock is real and of major concern. The term mycotoxin means poison from fungi. Fungi growth can occur either before or after harvest as well as during storage under favorable conditions. If not properly deactivated, mycotoxins have the potential to:

- Reduce fertility
- Reduce performance
- Impair gut health
- Suppress the immune system
- Damage the kidney and liver health

Among the thousands of species of fungi, only about 100 are known to produce mycotoxins. The major genera of fungi that produce mycotoxins are *Penicillium*, *Fusarium*, and *Aspergillus*. A total of 300 and 400 mycotoxins are known but they vary in their toxicity and occurrence. The most important mycotoxins, based on their toxicity and occurrence, are aflatoxin, deoxynivalenol (DON or vomitoxin), zearalenone, fumonisin, and T-2 toxin.

**Aflatoxin**  
It is a mycotoxin produced by fungi species of *Aspergillus* and rarely by *penicillium*. It contaminates corn, rice, peanuts, sorghum, sunflower seeds, and wheat. Aflatoxicosis is an acute or chronic mycotoxicosis produced by aflatoxins. Field outbreaks of aflatoxicosis are common in Pakistan. Aflatoxin mainly affects the liver and kidney but generally, all visceral organs are affected. Ruminants have mild tolerance against aflatoxins and normally there are chronic cases that cause production losses. Acute and per acute cases cause animal losses.

**Fumonisin**  
These are a group of mycotoxins derived from several fungi species of *Fusarium* that contaminate corn silage. Fumonisin are not degraded in the rumen significantly



and hence most of the fumonisins consumed by cattle are passed out in the feces.

**Zearalenone**  
It is a mycotoxin produced by fungi species of *Fusarium*. Zearalenone is heat-stable and is found worldwide in several cereal crops such as barley, wheat, maize, oat, and sorghum.

**Deoxynivalenol**  
Vomitoxin is a mycotoxin developed by fungi species of *Fusarium* which contaminate corn and other small grains such as wheat, barley, and oats. Normally, ruminants can transform the toxin into a less toxic product as it passes through their digestive tract due to their rumen microbes.

**Ochratoxins**  
Ochratoxins are compounds developed by fungi species of *Penicillium* and *Aspergillus* contaminate cereal grains, vegetables, and combined forage. Ochratoxicosis, mycotoxicosis produced by ochratoxins, is rarely reported in cattle owing to the ability of rumen microbiota to degrade ochratoxins to non-toxic forms.

**Most mycotoxins are chemically stable and survive food processing. Animals exhibit various signs after consuming these toxins which are summarized in the following table.**

Mycotoxin	Lactating cows	Heifers	Calves
Aflatoxin	Loss in body mass, lameness Diarrhea, rectal prolapse, decrease in feed intake and milk production	Delayed growth and reproductive performance	Depression Neurological signs Liver lesion Fibrosis
Deoxynivalenol	Anorexia, Reduced ruminal fermentation GI lesions Reduced milk production	A mild decline in feed consumption	Severe liver failure
Fumonisin	Hepatotoxicity Nephrotoxicity Reproduction problems Reduced milk yield	Delayed growth and reproductive performance	Lethargy Loss of appetite Hepatotoxicity nephrotoxicity
Zearalenone	Abnormal estrous cycle Vaginitis Sterility	Depression in conception rate Changes in the reproductive tract Abnormal mammary development	Changes in the reproductive organs

Mycotoxins can cause acute health and production problems in a dairy herd. Feed and crop management is important to control mycotoxin contamination in feed given to lactating cows, heifers, and especially calves. Mitigating Risk of Mycotoxins  
The food safety and health of dairy cattle are persistently compromised by mycotoxins. The negative impact of mycotoxins can be reduced by applying the following strategies:  
I. Pre-harvest management may include using microorganism chemical control, breeding resistant cultivars, and plant stressors management. These prevent fungal contamination in the field.  
II. Post-harvest approaches may focus on temperature and humidity control, modified atmosphere treatment, acid or alkaline treatment, and control by chemical anti-fungal agents applied to harvested products during harvesting, processing, and storage to prevent, reduce or eliminate mycotoxin contamination.

# Protective Efficacy of Novel Eolane Oil Adjuvanted Vaccine for *Pasteurella multocida* B:2 in Cattle Calves

By Maleeha Fatima, Syed Ehtisham-ul-Haque, Muhammad Adnan Saeed, Abdur Rahman Sial, Muhammad Hamza Rehman, Abdul Subhan, Shanza Khan

From the times of Edward Jenner and Louis Pasteur in the eighteenth and nineteenth centuries, until the eradication of rinderpest in bovine and smallpox in the human populations, vaccines have played an essential role in the survival, health, and general well-being of humans and animals. First generation vaccinations, also known as traditional inactivated and modified-live vaccines (IV and MLV, respectively), have provided both people and animals with advantages over the pathogenic environment that surrounds them. The success that has been witnessed in the livestock sectors as a result of the use of these vaccinations also had an influence on the economy.

Hemorrhagic Septicemia (HS), a special kind of acute and deadly illness produced by two distinct serotypes of *Pasteurella multocida*, is the name given to *Pasteurellosis* in cattle and water buffalo. The African serotype is known as E:2, whereas the Asian serotype is known as B:2. Economically speaking, HS is regarded as the most significant illness in Southeast Asia. With around 80 million livestock animals, Pakistan is a nation that raises livestock, with buffalo being the primary dairy animal. Hemorrhagic Septicemia (HS) is an endemic disease in Pakistan that costs livestock producers a lot of money each year, some estimates put the cost at \$20 million. Vaccination is the most effective method of preventing HS in cattle and buffaloes. The development of new Hemorrhagic Septicemia vaccines based on Eolane oil adjuvant is the topic of the current article.

**Vaccines against Hemorrhagic Septicemia**  
Vaccines used against HS are categorized into two types.

- 1. Inactivated vaccines
  - 2. Live attenuated vaccines
- Vaccination with an inactivated strain is standard practice in all endemic regions. It is obtainable in the form of three preparations: dense Bacterins either combined with alum

adjuvant or oil adjuvant and formalin inactivated Bacterins. It is believed that the oil adjuvant vaccine can provide immunity for up to one year, whereas alum Bacterins can provide immunity for only six months.

A virulent strain of *Pasteurella multocida* is used to create a live, attenuated vaccine, which has been utilized to suppress the illness in cattle and buffaloes for up to six months. Despite of FAO's recommendation, the only vaccinations used in the HS affected nations are lethal vaccines.

Vaccines and bacterins were most often utilized in Asia. However, the immunity they provide only lasts for four to six months. Animals must thus have two to three vaccinations each year. Additionally, some animals get illnesses after receiving a vaccination. Because they provide a better level of immunity and a longer period of protection, oil-based vaccinations were thus preferred over other vaccines. When comparing the oil adjuvant and alum precipitated vaccinations for Hemorrhagic Septicemia, it is obvious that the oil adjuvant vaccine should take the place of the alum precipitated vaccine. Oil is advantageous as a vaccine adjuvant because it reduces the toxicity of the vaccine, boosts the animal's immune response to sickness, and is stable. The oil adjuvant vaccination helps to prolong vaccine absorption in the body and is stable for more than six months when maintained at 4 to 8 degrees centigrade in a refrigerator.

The Oil Adjuvant Vaccine functions by forming an antigen depot and allowing its slow release over an extended period of time. It also protects the antigen from enzymes rapid degradation, attracts APCs to the injection site, and improves the antigen's uptake by antigen-presenting cells. The capsule contains a trace amount of bacterial proteins, and by including the appropriate dosage and adjuvants in the Bacterin, immunity against these proteins may be enhanced.

**Novel Vaccine with Eolane Oil Adjuvant:**  
In Pakistan, an oil-adjuvant vaccine made from Montanide ISA-50 is now utilized extensively. Although this vaccination is effective for a year, its adjuvant is highly expensive and must be imported from France thus, a different adjuvant

that is more affordable, safe, and widely accessible has to be investigated for the prevention of this illness. The goal of the current research was to create and assess the immunogenic impact of Eolane oil based vaccinations against HS in bovine calves that were as immunogenic as commercially marketed Montanide ISA-50 based vaccines. These innovative, safer, and immunogenic Eolane oil-based vaccines were made with assistance from the Veterinary Research Institute (VRI), Lahore. Animal hosts served as the subjects of tests to determine the effectiveness of vaccinations. My supervisor, Prof. Dr. Syed Ehtisham-ul-Haque, CVAS, Jhang, was awarded project number 629, "Development of Cost-Effective Oil Based Hemorrhagic Septicemia Vaccine Using Eolane as Adjuvant" by Punjab Agricultural Research Board (PARB) to conduct the study. In order to create a unique HS oil-based vaccination, an adjuvant called Eolane was used. To assess the efficacy of vaccine trials were conducted in the cattle calves (natural hosts). HS free calves of age 5-6 months were used in the research. Calves were partitioned into 3 three experimental groups, primed with newly prepared Eolane based vaccines and market available Montanide-ISA 50 based vaccine. After sampling, serum samples of calves were tested for immune titer by using Indirect Hemagglutination Test. Out of novel Eolane based vaccines, Eolane-150 adjuvanted vaccine showed good and comparable immune response with already available Montanide-ISA 50 based vaccine. No local, systematic vaccine reaction and mortality was observed for all the inoculated vaccines. Since the M-ISA 50 based vaccination is comparable immunogenic with the Eolane-150 based vaccine when adjuvant, the M-ISA 50 based vaccine could be replaced with the Eolane-150 based vaccine. Montanide ISA-50 oil adjuvant must be purchased from France for around 180 million rupees. Utilizing readily accessible and affordable the expected cost of Eolane-150 oil would be cut to 17.5 million rupees, saving 90 percent of the income. It is advised to create this vaccine in large quantities to stop HS infection in Pakistan.





# Isolation, Identification and molecular characterization of methicillin resistant *Staphylococcus aureus* isolated from bovine milk samples

By Aqeela Kanwal, Muhammad Adnan Saeed, Usman Waheed  
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Lahore Jhang-campus, Pakistan

**Abstract:** Methicillin-resistant *Staphylococcus aureus* (MRSA), related to livestock is called livestock associated methicillin resistant *Staphylococcus aureus* (LA-MRSA), is an emergent zoonotic problem in almost whole world. Clinical and subclinical mastitis in animals is also caused by this LA-MRSA. Mastitis (udder inflammation) is a serious condition that affects both the quality and amount of milk produced by dairy animals. Mastitis causes severe economical losses in dairy industry in Pakistan. Early detection of causative agent for mastitis could end up with the earlier treatment initiation and thus helps in the control of disease. Due to support of a variation in genetic capabilities *S. aureus* is highly tolerant and amongst them the prominent one is MRSA. Overuse and misuse of antibiotics especially methicillin causes resistance in *S. aureus*. The incidence of LA-MRSA in the milk

of infected animals is increasing day by day. MRSA transmission from animals to human and vice versa has been admitted as an infectious zoonosis. MRSA is one of the major causes of food borne diseases in the world. The studies on MRSA in Pakistan are scarce. To fill this knowledge gap, present study was planned with the focus on antimicrobial resistant genes existence in the isolated MRSA from milk. Present study involved the isolation and phenotypic identification of MRSA and MSSA (Methicillin susceptible *S. aureus*) from bovine milk samples. For their screening, antibiotic susceptibility test (AST) was carried out by using methicillin and oxacillin discs. For molecular characterization, identification of responsible gene conferring resistance against methicillin was done by PCR using gene specific primers. Mastitic milk samples were collected from bovines present in the area of study and then cultured on general purpose and selective media Staph110. Phenotypic confirmation of the isolated bacteria was confirmed by relevant



means of gram's staining and biochemical tests. Methicillin resistant *S. aureus* 50% and sensitive *S. aureus* 50% were identified by AST by applying methicillin discs in disc diffusion test. To identify the genes conferring the resistance against methicillin antibiotic was carried out by PCR using *mecA* specific primers. Moreover, to detect the presence of the *pvl* gene in MRSA, *pvl*-specific primers were used in the PCR. Present study confirmed the existence of LA-MRSA in the mastitic milk of bovines and *mecA*

and *pvl* genes were responsible for their resistance against methicillin and hence to all  $\beta$ -lactams antibiotics. Further studies on finding of candidate genes conferring the resistance against other antibiotics is the call for further studies in the field of food borne pathogens. This research work was conducted under the supervision of Dr. Usman Waheed and at postgraduate microbiology laboratory, Department of Pathobiology, College of Veterinary and Animal Sciences, Jhang, UVAS, Lahore.

## Does papaya leaf really help cure dengue?

### AVN Report

**KARACHI** - In the month of September, four people died from dengue fever in Karachi, a viral disease that can be easily prevented by seeking to avoid mosquito bites. According to the monthly report in Sindh, over 1,098 individuals have been confirmed with dengue. Following the rains, dengue fever has swept through several parts of the country. Nine individuals have passed away of the disease in the year, four of whom died this month. According to a report issued by the provincial health department on Monday, 113 new dengue cases were reported in Sindh in the last 24 hours, with 107 of them rising from Karachi. Dengue fever cases in Sindh significantly



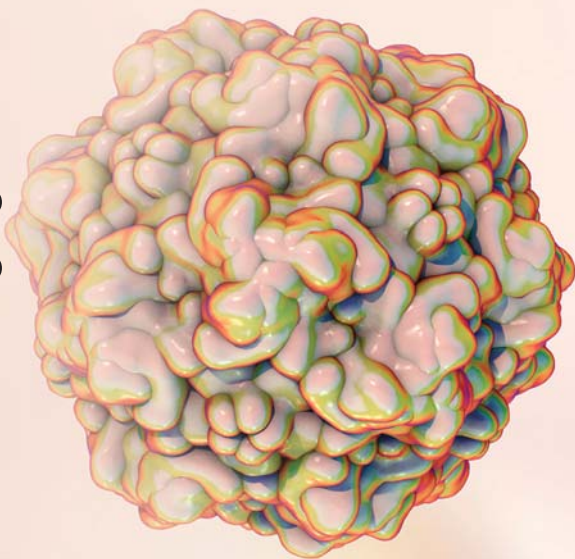
elevated the monsoon rains. The rising trend in fevers has jammed major private and government hospitals throughout Karachi. To protect themselves from dengue mosquitoes, medical officials have advised the general public to wear full-sleeved shirts and utilize

mosquito repellent lotion. Dengue fever has no vaccine or surgical intervention, and the only way to avoid it is to eliminate mosquitos. This will additionally assist in the prevention of other mosquito-borne diseases such as malaria, which is widely prevalent today in flood-affected areas, chikungunya infection, and Zika fever. If dengue fever is not managed, symptoms aggravate, likely to result in hemorrhage, shock, heart issues, and hepatic malfunction, a condition known as Dengue Shock Syndrome. It can eventually lead to death. As a result, once a person has contracted dengue, it is absolutely essential to seek immediate medical assistance in order to receive appropriate treatment and complete recovery from the viral fever.

Continued on Page 15



# Canine Parvovirus: What is it?



By Mehrosh Shaikh

An infectious disease, Canine Parvovirus (CPV), that affects domestic and wild canids has spread throughout the world. Since its initial discovery in 1978, the disease has been reported in New Zealand, Asia, Australia, America and Europe. Puppies between the ages of six and twenty weeks are frequently affected by canine parvovirus, which causes gastrointestinal disease. A rare variant of the disease-causing agent CPV also causes myocarditis (inflammation of heart muscle) in newborn puppies. Canine Parvovirus causes a disease namely "Parvo" was first discovered in 1976 in Europe. The virus' spread led to a worldwide epidemic of myocarditis and gastrointestinal illness in 1978. CPV is said to be closely related to Feline Panleukopenia Virus. A virus that infected cats, minks and other animals in 1920s. Two or three genetic alterations in FPV are probably what allowed it to expand its host range to infect dogs, leading to the emergence of CPV. Further research has revealed that the virus is not limited to dogs only. Canines like wolves, coyotes and other wild animals like foxes and raccoons are also prone to the disease.

## How does it spread?

Canine Parvovirus can be found anywhere, regardless of the environment. It can be transmitted by the direct or indirect contact of dogs with their faeces. The dog's immune system and exposure to other viruses are two other factors that contribute to the spread of the infection.

## Symptoms:

Canine Parvovirus shows severe symptoms in animals. The early symptoms include lethargy, depressive behaviour, and loss of appetite, which are then followed by a sudden high fever, bloody diarrhoea and vomiting. If your dog is experiencing any of these symptoms, then you know it is time for you to run to the veterinarian. The veterinarian will then run a number of tests to determine whether your dog is infected with CPV or not.

## Treatment choices and Precautions:

Depending on the severity of the condition, dogs with CPV have a variety of treatment options available to them. Along with providing care and management to the symptoms your

dog experience, there are other options which are a necessity for all the affected dogs. These vital options include a hospital stay so that the patient can receive intravenous fluids through drips to replace the nutrients omitted during vomiting and diarrhoea since the digestive tract is usually disturbed due to the virus. Blood transfusions are also vital in boosting the low blood cell counts which were decreased from CPV affecting the bone marrow. If the bacteria has attacked the bloodstream, antibiotics are another treatment choice which can be received either through drips or injections. It is important to know that if diagnosed timely, many dogs tend to respond to the medical treatment. As a result, the dogs attain lifelong immunity against the Canine Parvovirus. After the development of vaccination methods, three decades following the initial discovery of the disease, there has been a decline in the disease rate in puppies. However, outbreaks are reportedly still happening, so it is important to take preventive measures and have your dogs vaccinated along with disinfecting their living environment.







# How to take care of your pet Turtle

By Mehreen Rizvi

People have kept turtles as pets for many centuries because they are the most unusual, lovable and interesting companions. They also hold a deep symbolic meaning in many spiritual traditions. Turtles may not be cuddly, but they are adorable and fascinating. There are different types of turtles, all of which can be kept as pets as long as one familiarises themselves with how to take care of them. Here is a systematic guide on how you can take care of your pet turtle.

**Food:** If you want to keep your turtle happy, the best way is to feed them, their natural diet. It is called prey-based feeding which involves feeding things like worms, crickets, snails, slugs and other creatures that they would normally eat in the wild. Another way is by an artificial diet. There are many brands that offer different flavors made purposely for pet turtles.

**Housing your Turtle:** Before providing your pet turtle a shelter, you must know that there are two types of turtles; aquatic, which spend 75% of their time underwater and only go on land when basking or laying eggs. Another are semi-aquatic turtles which spend 50% of their time in water and rest on the land. When putting up a house for your pet, you have to know that turtles are cold-blooded creatures and extremely sensitive to change in temperatures. Keep in mind the following features when choosing the right tank for them:

- Use non-chlorinated water.
- If it's an aquatic turtle, the habitat should be 75% water, and if it's semi-aquatic, the water should cover 50% of the habitat.

- To prevent contamination, the water should be cleaned out on a regular basis.
- Heat and lightening are essential, so use UV-B and UV-A bulbs to provide optimum temperatures.
- Allow for proper ventilation in the tank.
- A turtle requires water to be around 70 degrees Fahrenheit and the air to be around 80 degrees. For this set a thermometer within the tank.
- If you are housing more than 2 turtles in a tank then each turtle will require at least 10 gallons worth of space.

**Ensuring Good Health:** If you somehow fail to meet any of the care requirements then there are chances that your pet may develop aquatic diseases.

**Fill the Tank with Clean Water:** It is very important to keep your aquarium water always fresh, clean and free from any food particles. One can easily tell if your tank is dirty if you smell a bad odor or if the filters are blocked.

**Exercise:** Turtles, like other pets, also need exercise. Providing your turtle with some fresh air one or twice a day will allow them to not feel suffocated or trapped. Studies have shown that a turtle can be more amicable towards its keeper if more outside time is allocated to their daily routine. If one chooses a turtle as their new companion, it shall be imperative to note that turtles require specific care and nurturing. Keeping in mind the aforementioned guide one can provide their pet with a suitable natural habitat-like home.



# Recovery from udder cleft dermatitis in dairy cattle

By Dr M. Waseem Nazar,  
Dr M. Kashif, Dr Amar Nasir,  
Dr Ans Nadeem  
Department of Clinical Sciences, University  
of Veterinary and Animal Science.

## Introduction:

Udder cleft dermatitis (UCD), also known as bovine ulcerative mammary dermatitis or foul udder. UCD is a skin condition of dairy cows that mainly affects the anterior part of the udders. UCD is basically an inflammation of the skin and is most often located between the front quarters, at the transition of the front quarter, and the abdominal wall. Detection of UCD can be difficult due to its anatomical position and the fact that affected cows seldom shows general sign of disease. Recent studies indicate that the presence and development of UCD are affected by cow-related factors such as udder conformation and parity, DIM (days in milk) and environmental factors, herd level production and the cubicle base in the free stall. The duration of UCD, particularly cases involving severe UCD, is often long; the mean duration was around 16 weeks to 21 weeks. The study also found mild UCD lesions had a higher recovery rate than severe lesions. Knowledge of spontaneous recovery rate and factors affecting such recovery is sparse. However, such knowledge is essential for increasing the understanding of the clinical course of UCD and identifying cows with the highest chance of spontaneous recovery and those less likely to recover and those that might need assistance.

## Etiology:

Etiology is not fully understood, but lesions have been associated with mange mites and bacterial colonization. It is caused by opportunistic anaerobic bacteria that colonize beneath scabs and necrotizing skin.

## SIGNS and associated risk factors:

There will be mild skin changes in the form of lesions with erythema, small crusts, papules and pustules to more severe lesions with open wounds, necrotic tissue, pus and blood. UCD may also increase the



Days of Treatment	Treatment Protocol	
Day 1	Cleaning with Hydrogen per Oxide Clean the wound and Pus with Payodine Remove debris and cicatrix	
Day 2-7	<b>Group 1</b> Apply topical ointment Mycitracin cream (Bacitracin, polymyxin, neomycin, lidocaine) Antibiotic named penbiotic (procaine penicillin, Benzyl Penicillin, Dihydro-streptomycin sulphate) use OTC spray on the infected area	<b>Group 2</b> paste of petroleum jelly and oxytetracycline capsules use OTC spray on the infected area
	OTC spray on infected area as a repellent from flies, mites and ticks.	OTC spray on infected area as a repellent from flies, mites and ticks.

risk of clinical Mastitis and embolic Pneumonia. In untreated cases, a deep lesion can be found-field reports of erosion into subcutaneous vein resulting in severe hemorrhage and even death. Different studies show that UCD is a common problem in modern dairy production. The lesion varies in appearance and size but thickened skin, crusts, pus and wounds that easily bleed are common findings. The deep lesion can also impair animal welfare, milk production and milk quality and can lead to premature culling.

## Description:

The study was conducted on a private dairy farm, housing about 70 cattle and 40 buffaloes. The farm owner reported that about 14 weeks ago, mild skin changes of the udder, such as redness of the skin and some papules in the area of fore udder attachment, were

observed in 4 cattle. These cattle were newly purchased from the remaining herd. Since there were only mild skin changes and cattle was lactating animal. So, the owner did not bother with its segregation or treatment. But after four weeks, the owner observed the following signs: small papules with serum exudate and hyperkeratosis of tissue. Due to this severity, the owner followed the antibiotic (Amoxicillin) prescribed by a veterinarian. But the animal did not respond to this treatment, and the signs became more severe. Due to more severity owner presented the case at the clinic with the signs, i.e. open wound and necrotic tissue, pus and blood. The size of the wound was more than 5×5 cm. These four affected animals were selected for the treatment. These four animals were isolated in a shed in the corner of the dairy farm.

## Treatment:

We divided these four affected animals into two groups. Two animals were kept in each group to adopt different treatment strategies. Firstly, wash the wound area of groups 1 and 2 with the strong antiseptic solution as hydrogen peroxide on day 1. Clean the pus and wound area of 4 infected animals with payodine. Remove debris and cicatrix around the area. There followed different treatments for both these groups. For group 1 animals, apply topical ointment Mycitracin cream (Bacitracin, polymyxin, neomycin, lidocaine) and penicillin group antibiotic named penbiotic (procaine penicillin, Benzyl Penicillin, Dihydro-streptomycin sulphate). After that, use OTC spray on the infected area as a repellent from flies, mites and ticks. For group 2 animals, make a paste of petroleum jelly and oxytetracycline capsules. Make the paste in a larger amount and use it on the infected area for remaining used as well. There is an advantage to using petroleum jelly because the infected part of UCD stay remains soft and heals earlier. Give the animal soft and clean bedding. Bunker sand must be clean. Do frequent milking, so that did not exert pressure on the udder. If doing hand milking, politely milk the animal. After that, wash hands with detol water. If doing machine milking, the pressure of the cluster must be low so that the animal does not feel pain. Clean the cluster with formalin and hot water to prevent the infection from spreading to others. Follow up this treatment until one week. After one week of consecutive treatment, complete wound and Necrotic tissue recovery occur. After that, prescribe the owner to use OTC spray as a topical application. However, the rate of regression of UCD was slow in group 2 compared to group 1 animals. The recovery was recorded after seven days in group 1, while it took about 11 days in group 2 animals to achieve complete recovery. This study revealed that for both groups, treatment results are efficient.



# The effect on cattle and poultry in torrential floods: Pakistan

## AVN Report

**KARACHI** - Outbreaks of lumpy skin disease (LSD), a viral skin disease that is caused by elevated nodules on the skin. This disease is caused by a debilitating virus in farm animals and has pushed up meat prices throughout the country.

Lumpy skin disease has had an impact on sales and production in every province. The disease had rapidly spread through Sindh and KPK and had now reached Punjab. LSD is thought to be spread by flies or mosquitoes, causing lesions on the skin and other symptoms such as significantly reduced milk production. It is often fatal. Moreover, the meat and milk from these animals are not safe to consume. In Sindh, the number of registered animals infected with LSD has risen to 53,393, with 571 cattle dying. At the

moment, the province's total number of infected animals exceeds 5,363, with 47,459 cattle recovering after successful treatment. In total, over 2.7 million cattle in the province have been fully vaccinated against the Lumpy Skin virus. However, farmers' refusal to have their animals vaccinated also played a significant role in the spread. Dr. Nazeer Hussain Kalhoro, the director general of Sindh's livestock department and the head of the provincial task force on Lumpy Skin disease criticized high

meat prices on a scarcity of investment in the sector by insufficient public and private sector investment.

According to farmers and provincial livestock department officials of Punjab, the Lumpy's skin disease entered Punjab from Sindh. Even though the disease affects cattle, calves are losing monetary value due to fear. So far, 29,620 cases have been reported among the 14.6 million cattle population, giving rise to

spread, as the disease has terrified away potential customers leading to trust issues with the meat provided by the shopkeepers. Up to this point, 20,000 animals have been vaccinated, approximately, in the entire province. The exports have declined significantly by up to 40% to 50%. Khyber Pakhtunkhwa has reported 46,343 LSD cases, culminating in 2,366 deaths accounting for a whopping 5% of total

infections. The disease's effect on the current financial losses has been estimated at Rs. 2 billion. Dr. Alamzeb, director general of the KP livestock department, estimates an Rs. 50 billion annual loss if the situation is not handled properly by vaccinating the cattle.

Pakistan is an agriculture-based economy, with a large portion of its economy based on livestock and dairy

farming. LSD has an impact on both of these industries, as well as associated sectors such as leather export. Without any checks and balances on the spread of this disease, a significant number of individuals involved in these businesses may face great hardship. Aside from LSD, devastating floods have killed hundreds of thousands of animals. A livestock shortage is expected in the coming days, impacting meat supply and resulting in higher prices.



765 deaths and 21,720 recoveries. Punjab seems to have two support and reassurance: the actual rate of spread is slow, and the LSD does not move to humans. However, the numbers have now stabilized because the province has vaccinated 15% of the livestock population.

Balochistan has also been equally affected. Abdul Samad, president of a provincial beef sellers' association, confirms that the sales have dropped by more than 40% since LSD

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## Deadly floods impact ...

Continued from front page

Ahmad Jawad, Vice President of Pakistan Businesses Forum states "The agricultural sector is in turmoil. The cotton crop and vegetables are completely wiped out in many key areas, wild weather just can't give us a break." Pakistan, the fifth-largest cotton producer, has faced severe damage in the production of cotton crops. As per Planning Minister Ahsan Iqbal, the impending devastation post the disastrous floods might further destroy the world's cotton supply.

In Pakistan, food staples have witnessed a soar in prices. Tomato prices have multiplied and onions have tripled since last month. The measures to import vegetables and other basic supplies from Iran and Afghanistan have been taken. It is reported that The World Food Program is also working to provide food aid to Pakistan with an aim to reach provinces which have been particularly hard hit like Balochistan and Sindh.

Flood-relief campaigns are being carried out throughout Pakistan to provide relief to the flood-hit areas. But as a result of the flooding, more than 100 bridges and nearly 3,000 kilometres of roads have been damaged, limiting access

throughout the country. As per the United Nations, 800,000 farm animals have died with 2 million acres of crops damaged. Pakistan has a rapidly increasing inflation rate. Approximately 2.6 million tonnes of wheat are in short supply across the country, and current crop damage from floods is estimated to be worth \$2.3 billion. Given that the Pakistani Prime Minister, Shehbaz Sharif is in talks with Russia to import wheat, there is great anticipation for the challenges that the sowing of the wheat crops brings in the upcoming year.

## Does papaya leaf ...

Continued from page 09

According to interviews with several other infectious diseases experts, medicine professors, and gastroenterologists, papaya leaf juice has no significant role in the treatment of dengue infection and doesn't have any possibility of increasing platelets in patients with dengue viral infections. Consumers warned that papaya leaf juice could cause severe diarrhea in dengue patients, who need liquid maintenance to avoid going into dengue shock, and advised people not to use herbal remedies because it could result in the death of some patients.

When asked if papaya leaf juice had any pharmacological properties in healing dengue fever, highly regarded infectious diseases expert and former Special Assistant to the Prime Minister Dr. Faisal Sultan repeatedly denied it, saying papaya leaf juice had no part in dengue fever management.

Dr. Tasneem Ahsan, a renowned endocrinologist and former Executive Director of Jinnah Postgraduate Medical Center (JPMC), also mentioned that there wasn't any scientific evidence to back up any benefit of giving papaya leaf juice to dengue hemorrhagic fever patients. There have been several unverifiable case reports from endemic regions, but no proper scientific study has been conducted. Because platelets start rising on their own, it would be difficult to conclude that the elevation in a particular instance was influenced by papaya leaves unless there was a situation control. Since there is no documented role and no comprehensive literature to support the significance of papaya leaves, doctors do not recommend it. However, if individuals inquire about it, they are allowed to consume them at their own risk. However, the benefits of consuming papaya leaves, in general, are remarkable.

## بقیہ: سیلاب کے پیش نظر---

اندرونی نگرانی اور اپنے آپریٹرز کو ڈیجیٹل کرنے کے لیے ٹیکنالوجی کے بڑھتے استعمال کو قرار دیا۔ ایشیائی ترقیاتی بینک کی مالی سال 2022 میں مہنگائی میں اضافے کی پیش گوئی اس تبدیلی کے نتیجے میں ریکوری میں بہتری آئی اور فنڈز کی واپسی ہوئی کیونکہ فیڈ اسٹاف کی سخت نگرانی کی گئی، انتظامیہ نے ایڈجسٹمنٹ کرنے پر توجہ مرکوز کی اور 2 سال کے لیے اضافہ روک دیا۔ اسی عملے کی حوصلہ افزائی کی گئی کہ وہ خود ان فائلوں کو بازیافت کریں اور ان فنڈز کو واپس لائیں، اس کی ترغیب کے لیے ریکوری پر 10 فیصد انعام بھی رکھا گیا۔

بیرونی آڈیٹرز کا تصوراتی بینکوں کی طرز پر متعارف کرایا گیا اور 31 میں سے 20 وز کا آڈٹ اے کلاس آڈٹ فرموں نے کیا۔

نیٹجیٹا اسپیشل ایسٹ مینجمنٹ (ایس اے ایم) کی ریکوری جون 2021 میں 2 ارب 90 کروڑ روپے تک پہنچ گئی اور رواں سال جون میں 4 ارب 10 کروڑ روپے تک پہنچ گئی جو کہ جون 2019 میں 60 کروڑ 70 لاکھ روپے اور جون 2020 میں 66 کروڑ تھی۔

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## سیلاب کے پیش نظر 20 ارب روپے کے زرعی قرضے ایک سال کیلئے موخر کرنے کا اصولی فیصلہ

زرعی ترقیاتی بینک لمیٹڈ نے فصلوں کو بڑے پیمانے پر تباہ کرنے والے بدترین سیلاب کے پیش نظر زراعت کے شعبے سے وابستہ 57 ہزار سے زائد خاندانوں کی مدد کے لیے 20 ارب روپے تک کے زرعی قرضوں کو ایک سال کے لیے موخر کرنے کا اصولی فیصلہ کیا ہے۔

صدر زرعی ترقیاتی بینک محمد شہباز جمیل نے کہا کہ بینک نے حکومت سے درخواست کی ہے کہ وہ تقریباً 4 ارب روپے کے اس سود کی فنڈنگ کے لیے کوئی راستہ تلاش کرے جو ان کسانوں پر اس مدت کے دوران واجب الادا ہو

پاکستان میں ایک اندازے کے مطابق کپاس کی تقریباً 35 فیصد فصل ضائع ہوئی۔

توقع کی جارہی ہے کہ حکومت کی جانب سے تمام بینکوں کے ذریعے تقریباً 100 ارب روپے مالیت کے زرعی قرضے موخر کرنے کی سہولت فراہم کی جائیگی جس کے لیے اسے سود پر سبسڈی کے عوض تقریباً 20 ارب روپے فراہم کرنے ہوں گے۔

اسے اسٹیٹ بینک آف پاکستان کے وفاقی حکومت کو

اس طبقے کی مدد بھی کی۔

زرعی ترقیاتی بینک پہلے ہی اپنے خالص منافع کا 10 فیصد سیلاب متاثرین کے لیے عطیہ کر چکا ہے، خسارے میں چلنے والے اس سرکاری ادارے کو برسوں بعد منافع بخش بناتے ہوئے رواں سال

12.5 ایکڑ سے کم اراضی ہے اور وہ غریب ترین کسانوں میں سے ہیں، حکومت نے ایک سال (جولائی 2020 سے جون 2021) کے لیے 80 فیصد مارکیٹ کے اخراجات برداشت کر کے کورونا وبا کے دوران بھی

جون میں زرعی ترقیاتی بینک نے 51 کروڑ 40 لاکھ روپے کا منافع بعد از ٹیکس ادا کیا۔

زرعی ترقیاتی بینک نے اس تبدیلی کی وجہ چیک اینڈ بیلنس کے ذریعے بہتر صفحہ بقیہ نمبر 15

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جائے گا جن کی فصلیں ڈوب چکی ہیں یا مکمل تباہ ہو چکی ہیں۔

یہ فیصلہ قرض میں ریلیف کا سبب بن سکتا ہے جسے حکومت ملک بھر کے کسانوں کو فراہم کرنے پر غور کر رہی ہے تاہم اس کا حتمی فیصلہ عالمی مالیاتی فنڈ (آئی ایم ایف) کی منظوری پر منحصر ہے۔

ایک اندازے کے مطابق سندھ میں کپاس کی فصل کے تقریباً 65 فیصد حصے کو نقصان پہنچا، اس کے بعد پنجاب کے 15 فیصد حصے کو نقصان پہنچا، مجموعی طور پر

ملنے والے منافع سے ایڈجسٹ کیا جاسکتا ہے، آئی ایم ایف کی رضامندی سے حکومت سیلاب سے متاثرہ علاقوں میں کسانوں کے لیے ایک سال کا اضافہ معاف کر دے گی۔

زرعی قرضوں کا 81 فیصد پنجاب کے کسانوں میں تقسیم زرعی ترقیاتی بینک کے 90 فیصد صارفین کے پاس