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Pak-Afghan Trade: Increased Export of Agricultural Commodities

AVN Report

KARACHI - According to Mohammad Sadiq, Pakistan's Special Representative for Afghanistan, the number of trucks delivering vegetables to Pakistan from Afghanistan every day has risen to approximately 400.

Afghanistan and Pakistan are both predominantly agricultural economies. The most significant area of Afghan agriculture is allegedly fruit and vegetables, which provides a good source of income for millions of farmers and serves as a source of building ingredients for the dried fruit sector.

There are plenty of scrumptious and nutritious fresh products available in the region. Due to the variety of fruit trees in Afghanistan, several well-known agronomists consider the nation as the home of the world's largest agricultural production.

Due to their abundant harvest this year and Pakistan's crops being ravaged by the devastating floods that hit the nation, Afghan farmers and entrepreneurs are significantly benefiting from trade with Pakistan. In a series of tweets on Sunday, October 9, the Pakistani ambassador for Afghanistan reported that Pakistan imports 300 to 400 truckloads of vegetables from Afghanistan each day. Further stating that this is the kind of connection

Continued on Page 15

Avifloxin-10

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Composition:
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- **Bactericidal mode of action**
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- **Enhances immunity**
- **Improves digestion**
- **Balances & strengthens intestinal microflora**
- **Reduces the load of pathogens like E.coli and Salmonella**

HiltON PHARMA

High Quality - Our Strength

Animal Health Division

The veterinary drug industry to grow by USD 50,000 million by 2028

AVN Report

KARACHI - Veterinary Medicine Industry is the best growing and the highest revenue-producing sector with USD 50,000 Million by 2028 at an annual growth rate of 6.4%

Due to rising attention to the use of veterinary drugs, Asia-Pacific is anticipated to expand at the fastest rate. Other forces influencing the market growth in the region include increasing recognition of animal health and shareholding of domestic pets. Factors driving the expansion of the veterinary medicine market include a boost in the number of pet owners and an increase in the international livestock population.

Since individuals from all over the world actually started bringing family pets into their households, the number of individuals who own pets has increased steadily. This element is expected to propel the expansion of the veterinary medicine economy. Individuals who worked in remote locations were nearly eight times more likely to get a new pet in 2020, amidst the COVID-19 pandemic.

Approximately two-thirds of people who were married or unmarried stated that having more time had been their primary reason for adopting a pet, whereas individuals who were divorced, separated, or widowed confirmed that companionship was their principal motivation.

Furthermore, components such as an increment in various illnesses in animals and a rise in the demand for meat production accelerate the veterinary medicine economy forward. Another major factor driving market growth is an upsurge in animal healthcare costs. However, the lack of veterinary infrastructure in developing countries along with increased regulation pertaining to medical food supplements, restrict the expansion of the veterinary drug market.

On the other hand, rising animal health awareness provides a tremendous opportunity for the veterinary medicine business.

In this progressively cluttered nature of our planet, where animals and humans coexist in tight proximity, the likelihood of highly contagious illnesses spreading among species has accelerated. Diseases can spread more rapidly than ever previously as a result of today's world's changing ecological systems, globalization, changing lifestyles, and constantly increasing community. Livestock producers face a number of challenges. Highly infectious diseases have historically caused enormous epidemics. As a result, food safety is essential and needs to be acknowledged in order to prevent food-borne diseases, particularly in the context of the world economy.

Due to factors like an increase in parasite infestation in animal life and the spread of viral diseases, the pharmaceuticals segment represented the majority of the market share.

The parenteral method of administration accounted for the majority of the animal health drug industry in 2019. The significant number of intravenous infusion compositions offered by the market's key figures is credited to the growth of the market.

Furthermore, there has been a major shift in funding and advancement in the field of animal health. Developing-country authorities are experimenting with innovative and unique policy measures in order to boost public delivery of animal health services all the while preserving viable and fair marketplaces for animal health services, especially in rural areas with low incomes. This is expected to propel the expansion of the veterinary medicine market.

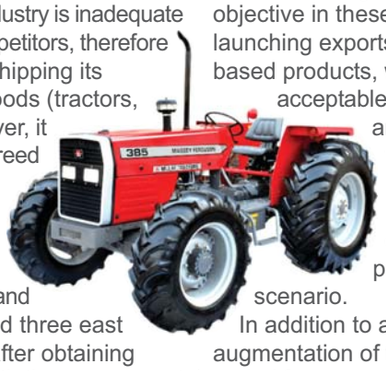
Pakistani tractors will now maneuver internationally

AVN Report

KARACHI - According to a private tractor company, Pakistan will likely start supplying tractors to three east African and three central and south Asian nations, indicating that soil inspections would immediately start within these regions.

Due to increasing customer preferences and quality, Pakistan is in a booming demand for large agricultural tractor exports. Tractors manufactured in Pakistan are extensively exported to a multitude of countries around the world. Pakistan provides a variety of possibilities for exporting high-end, reliable, and long-lasting agricultural farming equipment to both domestic and global markets since it is an agricultural industry.

According to Mr. Malik Ehtisham Ikram, Chief Executive Officer of the private tractor manufacturing unit, the quality of Pakistan's tractor manufacturing industry is inadequate to that of the competitors, therefore restricts it from shipping its manufactured goods (tractors, parts etc). However, it has now been agreed to commence shipping tractors to Sri Lanka, Kazakhstan, Tajikistan (South and Central Asia), and three east African nations after obtaining approval from both the government and our technological collaborators. Soon, soil analyses will start in these nations in an effort to create tractors that work with their agricultural terrain. The tractors that Pakistan is producing are not appropriate for the environment of the target nations. Aiming to execute this objective in these nations by launching exports of our Pakistan-based products, which are acceptable with their farmers and the soil quality, the company intends to recruit experienced export-focused personnel in this scenario.



In addition to allowing an augmentation of the insurance period for new model tractors up to 18 months, he said that his company created over 42,000 tractors in the preceding eight or nine months. Over the last decade, 400,000 tractors have been manufactured and also have achieved a 46 percent market share, which has been the highest so far. The business also revealed the 2023 models as a celebration for its 40th anniversary.

The government needs to independently assess the tractor manufacturing industry and the automotive sector to figure out the consequences of the ban imposed by the government on the imports of spare parts in an attempt to lower import costs and boost exports. Fortunately, this industry in Pakistan generates 90% of the equipment for tractors. Only 10% of the parts, particularly fuel injectors, are foreign. However, the restriction has significantly hampered the country's manufacturing, and as it pertains to agricultural production, the government can investigate the issue.

Three-year-old meat uncovered inside a restaurant in Lahore by the Punjab Food Authority

AVN Report

LAHORE - The Punjab Food Authority (PFA) confiscated 7,000 kg of beef that was nearly three years old on Tuesday. The meat, which had been imported from somewhere other than Pakistan, was spotted inside the hotel's cold storage area.

Investigation by officials of the food administration concluded that it is uncertain whether the frozen beef is halal or haram. The meat was burnt by the authorities following the examination.

Meanwhile, the authorities discovered contaminated food, including chickpea flour, millets, and crushed chillies, during a raid

on one of the Sargodha factories. DG Mudassar Riaz Malik instructed the factory to be locked off and assigned researchers guidelines regarding the issue.

The PFA confiscated thousands of litres of inadequate cooking oil earlier this year in April during a raid on a factory in Muridke, Sheikhupura. In the absence of any safety or health regulations specified by the PFA, 4,200 liters of filthy cooking oil that was stored in non-food grade containers was discarded by the PFA.

Residents of the province are puzzled by the incident and are unable to fathom how the PFA, which is well regarded for its advocacy against substandard or contaminated edible products, could have managed to remain by and allowed it to occur for so long.

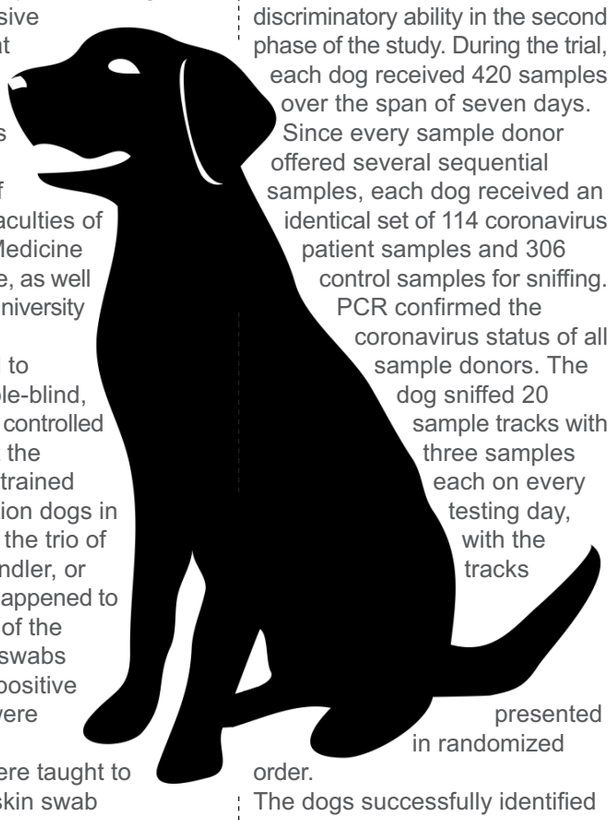
Scent dogs can now detect corona virus from skin swabs

AVN Report

KARACHI - A recent study conducted by the University of Helsinki and Helsinki University Hospital confirmed that scent detection dogs can be trained to identify individuals with coronavirus infectious diseases using skin swabs. The dogs were 92 percent precise in recognizing the samples in the experimental setup at Finland's Helsinki-Vantaa International Airport.

COVID-19 pandemic restraint necessarily requires rapid large-scale identification of infected individuals. Most SARSCoV-2 patients have no symptoms or have only mild symptoms, however they are contagious. The modern reverse transcriptase polymerase chain reaction (RT-PCR) technique has been used widely in the screening approach. Its efficacy is hampered by woefully inadequate availability, limited testing potential, rising costs, a long and tedious processing time.

Dogs have an extremely sensitive olfactory system. During the prevailing pandemic, scent sensing dogs had been trained to identify COVID-19 samples from hospital settings. Initial findings appear to suggest that dogs can be trained within only very few weeks to detect samples from SARS-CoV-2-infected individuals with a comparable accuracy to standard RT-PCR. The scent dog approach appears particularly appealing for testing SARS-CoV-2-infected individuals in public settings and among massive gatherings at airports and ports.



Researchers from the University of Helsinki's Faculties of Veterinary Medicine and Medicine, as well as Helsinki University Hospital, collaborated to design a triple-blind, randomised, controlled study to test the precision of trained scent detection dogs in that none of the trio of dog, dog handler, or researcher happened to know which of the sniffed skin swabs taken were positive and which were negative.

The dogs were taught to distinguish skin swab samples from coronavirus patients from those from volunteers who tested negative in the first phase of the study. After several weeks of training, the dogs were relocated from the training complex to Helsinki-Vantaa Airport for the next stages of the study.

Phase 2: Four trained dogs managed to complete a verification test to showcase their discriminatory ability in the second phase of the study. During the trial, each dog received 420 samples over the span of seven days. Since every sample donor offered several sequential samples, each dog received an identical set of 114 coronavirus patient samples and 306 control samples for sniffing. PCR confirmed the coronavirus status of all sample donors. The dog sniffed 20 sample tracks with three samples each on every testing day, with the tracks presented in randomized order.

The dogs successfully identified the samples 92 percent of the times. Their specificity for sensing a positive coronavirus sample was 92%, but their precision was 91%.

Phase 3: The third phase of the study involved screening real-life passengers and staff at Helsinki-Vantaa Airport. 98.7 percent of the negative samples had been successfully identified by the scent dogs. The low figure of coronavirus-positive samples in actual testing prevented an adequate assessment of the dogs' performance with positive samples. However, based on positive work motivation samples given to the dogs on a regular basis during this part of the study, output on correctly recognized positive samples was also evaluated at 98.7 percent.

Misguided samples that have been pre-collected from PCR positive patients but have never been sniffed by dogs earlier were given to the dogs at regular intervals to maintain their interest in the target odor in situations and environments where the proportion of the target odour is minimal.

Scent dogs can be an amazing resource in restricting viral spread during a pandemic, providing at airports and seaports, for example. Such a dependable, low-cost method for rapidly screening a large number of samples is valuable, particularly when traditional methods' testing capacity is inadequate. The research community will, however, continue to further investigate how scent dogs can truly benefit our society.

Dry cow therapy: A formula for success - Progressive Dairy

By Muhammad Asad Fayyaz, Amar Nasir, Ans Nadeem, Muhammad Umer Iqbal, Aftab Hussain
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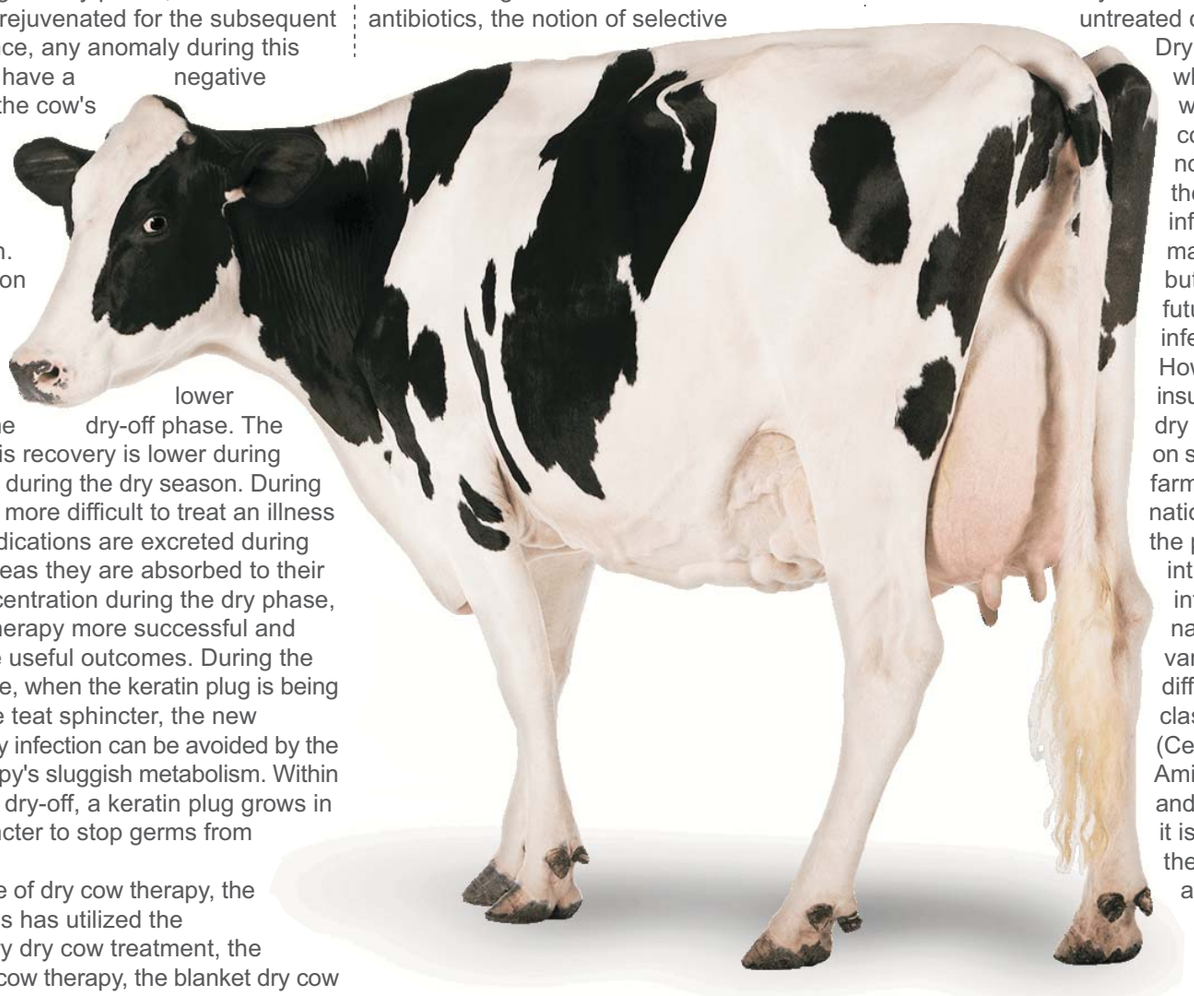
Mastitis is a widespread problem in the dairy industry that has resulted in significant economic losses worldwide. Mastitis is a condition of the mammary glands characterized by pathological Changes in the milk and glandular tissue of the mammary glands that are palpable. The presence of clots, discoloration, and a number of leukocytes are the most notable changes to the milk. According to some research, one out of every four dairy animals suffers from this illness. In addition to affecting the exocrine and endocrine glands, mastitis causes a reduction in milk production. This illness prevents dairy animals from achieving their maximum milk production potential. A survey of livestock in Pakistan on the ground showed that mastitis is the most common disease among dairy cattle. Milking procedures, the presence of teat and udder lesions, excessive milk production, husbandry practices, and the improper use of medications are predisposing factors for mastitis. Within 30 days following delivery, the risk of developing mastitis increases. This is often caused by many bacterial strains, such as Corynebacterium pyogenes, Staphylococcus aureus, and Streptococcus agalactiae. The lactation cycle of a dairy cow includes an essential phase known as the dry period. During the dry phase, the animal and its udder are rejuvenated for the subsequent lactation; hence, any anomaly during this period would have a negative influence on the cow's health, and lactation yield decreases following birth. During lactation phase, the likelihood of bacterial infection is lower than during the dry-off phase. The rate of mastitis recovery is lower during lactation than during the dry season. During lactation, it is more difficult to treat an illness since the medications are excreted during milking, whereas they are absorbed to their greatest concentration during the dry phase, making the therapy more successful and yielding more useful outcomes. During the early dry stage, when the keratin plug is being created in the teat sphincter, the new intramammary infection can be avoided by the dry cow therapy's sluggish metabolism. Within two weeks of dry-off, a keratin plug grows in the teat sphincter to stop germs from getting in.

In the practice of dry cow therapy, the dairy business has utilized the intramammary dry cow treatment, the systemic dry cow therapy, the blanket dry cow therapy, and the selective dry cow therapy. Intramammary dry cow therapy and systematic dry cow therapy are the most common recurring procedures used for dry cow therapy. The implantation of antibiotic tubes in all teats of the udder without a mammary gland infection constitutes blanket dry cow treatment. In contrast to blanket dry cow therapy, selective dry cow therapy involves the implantation of anti-biotic tubes in only the affected udder quarters. Due to the advent of antimicrobial resistance against several classes of antibiotics, the notion of selective dry cow therapy has largely replaced the practice of blanket dry cow therapy among farmers in the United States and other industrialized nations. Due to the delivery of antibiotics to every teat of the udder regardless of the presence or absence of illness, blanket dry cow treatment is not an economically viable method for managing intramammary infections. This method may be useful if the incidence or prevalence of mammary infections is high. In order to prevent the spread of mastitis, it is necessary to develop an appropriate plan. During the dry phase, several antibiotics are delivered intramuscularly or systemically. However, several risk considerations are connected with intramammary therapy, such as harm to the streak canal and the introduction of infectious organisms at the moment of inoculation, necessitating a careful clinical approach. Intra-mammary dry cow treatment is an effective way of eradicating mastitis-causing bacteria. The intramammary approach is superior to the systemic method in dry cow treatment due to the maximum absorption of medicines. In addition to enhancing the dispersion of treatment medicines, non-lactating cow therapy prevents the introduction of new infectious pathogens into mammary tissues. High medicine dosages reduce intramammary infection during the dry period. During the non-lactating period, the concentration of milk residue is shown to be lower in animals treated with antibiotics. Post-calving mastitis was less common in cows treated with dry cow therapy than in untreated cows in Europe. Dry cow treatment, when combined with a mastitis control regimen, not only removes the existing infection of the mammary glands but also prevents future bacterial infections. However, there is insufficient study on dry cow treatment on smallholder dairy farms in poor nations. In light of the prevalence of intramammary infections in the nation and the varying efficacy of different antibiotic classes (Cephalosporin, Aminoglycosides, and Penicillin, etc.), it is vital to identify the most effective antibiotics in order to save the farmer's economy.



Mitigation strategies for livestock methane gas emission

Introduction

Livestock, which included monogastric and polygastric animals like cattle, and buffalo are an important part of human food accomplishment. Human fulfills not only their food requirement but also protein requirement from these sources. Instead to beneficial for humans, ruminants considerably produce methane gas which is then contributing to global warming and the destruction of the ozone layer. The total ruminant methane production is 95% of total world animal and human methane emissions and is responsible for greenhouse gases to be as high as 18%. Moreover, in ruminants, the increased energy loss and decreased productivity are also seen due to methane gas production. About 6-10% of ruminants' gross energy is converted to methane gas.

Production of methane gas

The rumen environment is anaerobic. Through hydrogenation oxidation of carbohydrates and protein is done for energy production. Due to the process of hydrogenation h2 gas is being produced which has to be eliminated from the body via methanogenesis and acetogenesis. Several methanogens use carbon dioxide and h2 to form methane and also to produce acetate as an end product.

$CO2 + 4H2 \longrightarrow CH4 + 2H2O$ Methanogenesis

$2CO2 + 4H2 \longrightarrow CH3COOH + 2H2O$ Acetogenesis

Hence CH4 production is essential for the removal of h2 gas which may accumulate to cause negative feedback on microbial organic matter degradation. But our main purpose is to decrease CH4 gas emission up to 10-15% without any harmful effect on rumen function.

Reduction of ruminal methane production

By conversion of electron flow chain from methane to more propionate production and more energy and carbon present in short chain fatty acids which the animal can use for energy production.

1- Diet manipulation

The type of feed given to animals may have a major impact on animal methane production. The forage to concentrate ratio has a major effect on rumen fermentation and the acetate to propionate ratio. it has been recommended that feeding a more concentrated diet to an animal would decrease methane production. A higher amount of concentrate like grains in the diet would decrease ruminal PH and hence certain populations of ciliates, protozoa, and methanogenic bacteria may die or be eliminated. In developing countries, this concept is still very much open but developed countries have already increased animal diets with concentrates. In dairy cattle concentrates harm milk quality as the percentage of concentrates increases above 50% of the diet. Moreover, the animal will be at high risk of diseases like acidosis, laminitis, etc.

2- Use of feed additives

A-Lipids directly affect methane production. They act as a substitute for carbohydrates for energy production. If we add lipids to the diet it will decrease methane emission by hydrogenation of polyunsaturated fatty acids and decrease the activity of methanogens and bacteria and affect the organic matter fermentation in the rumen. By lipid supplementation, a 10-25% of methane reduction is observed. A much higher level of methane reduction can be observed by increasing the lipid supplementation in the diet. it is recommended that total fat should not exceed 6-7% of dry matter intake otherwise it may affect the digestibility of feed.

B-Antibiotics

Antibiotics used by animal producers as growth promoters for several years worldwide. Antibiotic chlortetracycline (11 ppm) in feed decreases methane production by 9-22% more than control animals in vitro incubation. it is due to the inhibition of microbes producing hydrogen and formate both are precursors of methane. Another antibiotic avoparcin (glycopeptide) acts on gram-positive bacteria to decrease methane production by converting the short-chain fatty acid pattern to higher propionate production by using acetate and butyrate. Bacitracin (polypeptide)also works against gram-positive bacteria but is less efficient than ionophores. Monensin is the most potent antibiotic in ruminant fermentation. It is produced by streptomyces cinnamonensis and is known to increase milk production. It changes the bacterial population from gram-positive to gram-negative and changes rumen fermentation from acetate to propionate. The decrease in methane production ranges from slight to about 25%.

C-Plant extract

Now researchers and experts are more focused on the use of natural plant extract rather than the use of other additives because of their long-term availability. Natural feed additives are being used which are rich in saponins, tannins, and essential oils. Saponins have their anti-protozoal effect. They form a complex with sterols in the protozoal cell membrane causing cell lysis and inhibition of their activity. The way tannins work to reduce methane production is via indirectly decreasing the fiber digestion which then decreases the h2 production, or via direct inhibition of methanogens growth.

To evaluate the ideal doses of these plant extracts to have minimal effect on animals intensive research is needed. The possible side effect of the use of saponins is its hemolytic effect and tannins may result in low palatability and impairment of ruminal digestion.

3- Animal management

There are various ways to manage animals in the grazing system to minimize the methane gas emission protect the ozone layer and minimize global warming.

A-Age at first joining

Animals kept for breeding remains uneconomical for us until they give their first progeny but feeding at the same time will result in increasing greenhouse gas. So one way to overcome it is to reduce the time before animals are bred. It will impact on reduces the milk intensity of animal as well as increase profitability. Similarly in beef animals selection at younger age seems to be economical as compared to later in age. However, we must remember that replacement females should have enough weight to select for early joining than underweight animals which will affect the economy.

B-Lifetime in herd and flock

'Optimum age in a flock or herd should be selected to obtain maximum genetic gain from an animal. Awareness should be given that keeping animals that are non-productive in a herd or flock will result in more global warming and also uneconomical.

C-Genetics

Methane yield has been found to have low heritability in both sheep and goats but has no undesirable effect on economical traits(growth, reproduction, commercial). The low correlation between methane yield and productivity traits makes it difficult to reduce methane yield by the selection of correlated traits. The main drawback of the genetic improvement plan is its slow progress, but it can give certainty of progress and is more easily acceptable all over the world which can give slow but steady responses.

D-Methanogen vaccines

The vaccine provides a tool for reducing methane production without animal and feed base management changes. Via non-nutritional mechanisms vaccines mainly target the methane-producing microbes. Vaccines will produce a serum antibody response against methanogenic microbes resulting in a decrease in methane production. These antibodies move from saliva to the digestive tract and inhibit methanogenic bacteria. The use of the vaccine to mitigate methane has been facing challenges around the globe. If an effective vaccine develops it should be universally administrated to herds and flocks. There is no such published data that showed the consistent mitigation of methane in any in vivo studies.

Conclusion

The main producer of methane gas production in livestock is ruminants. They produce, in general,250 to 500 liters of methane gas per day. Mitigation strategies for methane gas emission include diet manipulation, use of feed additives, animal management, and use of methanogen vaccines. These strategies increase not only the productivity of animals but also help to decrease global warming and the destruction of the ozone layer. The use of the best possible method depends on its advantage, disadvantages, and cost-effectiveness.

China keen on importing donkeys, dogs from Pakistan

AVN Report

KARACHI - China has expressed interest in importing donkeys and dogs from Pakistan, according to officials as the famished country attempts to recover from a massive economic crisis.

Pakistan, which has the world's third largest donkey population with 5.7 million animals, has previously outsourced the animals to China. During a briefing on imports and exports between officials from the Ministry of Commerce and the Senate Standing Committee on Monday, one of its members, Dinesh Kumar, said that China had expressed interest in importing donkeys and dogs from Pakistan. Senator Abdul Qadir also informed the committee that the Chinese ambassador had discussed the possibility of Pakistan exporting meat multiple times. One committee member also suggested that since animals are cheaper in Afghanistan, Pakistan can maybe import from there and then export the beef to China.

China has a strong interest in donkeys because the animal's leather is used to create traditional Chinese medicines, such as "Ejiao," or donkey glue, which reportedly has medicinal properties and is conventionally used to nourish the blood and boost the immune system. It is available in a variety of edible forms to aid circulation and soothe aches and pains. Approximately 2 million of the animals come from China's own population. Three million or more of the remaining are sourced from countries outside China. Last year, the Punjab government intended to export donkeys to earn foreign exchange. They further established a 3,000-acre donkey farm in the Okara district of Punjab province. The government-owned farm which has donkeys of "great breeds," which include American donkeys, promotes high-quality donkeys to China and other countries. Previously, China imported donkeys from Niger and Burkina Faso. However, the two countries later prohibited animal exports.

Dogs' societal roles are growing, whether as companions or as support or therapy dogs for volunteer groups or human healthcare providers. Many changes are visible in new research findings and evolving regulatory and legal updates regarding dogs' roles in society. Dogs have been domesticated since the Iron Age. Traditionally, they were used for hunting. They were utilized to guard and herd farm animals in some agricultural societies (sheep and cattle dogs). Dogs were expected to hunt, steal food remains, and gather for themselves, and there was no control over breeding. Dogs were used as draught animals in the middle Ages, lifting small carts for farms, salesmen, or visitors (milk, fish, rags & bones, meat, bread, and other products).

The integration of pets into our households has accelerated in today's modern societies, which have chiefly large urban population levels and increasing wealth. The way humans and dogs interact has also changed. Dogs now are kept for personal security, comfort and love, protecting property, and emotional support.

The psychological and social effects of dogs on individuals are derived from theoretical perspectives with associated physical and social processes. The practical applications of interpersonal interaction for therapy or enhanced life quality are expanding. Animals can provide psychological and social benefits in a range of ways, such as: legitimizing and enhancing the quality of life for those with mental illnesses or disabilities by easing loneliness or depression, increasing social relationships, influencing people, and improving physiological health with comforting effects.

China's demand for dogs differs by region, similar to the extent of dog consumption in China. Yulin, Guangxi, has managed to hold an annual festival of eating dog meat since 2009. It was last held on 21st June 2022. It was reported that each yearly occurrence of the festival ingested approximately 10,000 dogs. According to the festival's organizing committee, the dogs are slaughtered humanely, and snacking on dogs is no different from consuming pork or beef. Animal rights activists and advocacy groups, on the other side, claim that animals are treated poorly. According to several news organizations, dogs are deliberately tortured or boiled alive to improve the taste of their meat. According to a report by the Animals Asia Foundation, the majority of the dogs available for consumption are strays or stolen pets. Approximately 70% of rural villages in China surveyed had unexplained dog losses.

Not all of us question the value of saving animals or the need to relieve their suffering. As selfless people, we comprehend that even small acts of compassion can make a big difference in somebody's life. We do it because it is the right thing to do, out of joy, awareness, compassion, and understanding, or simply because it is the right thing to do. Whatever our lifestyle choices are, everything we do each day has an influence on animals, even if we don't own these. And, although it is wonderful to continue living a cruelty-free style of life, I acknowledge that it is not for everyone. Helping animals tends to increase our humanity and contentment. It also aids in the recovery from trauma and depression.

Trap-Neuter-Vaccinate-Return (TNVR) is the internationally proven process of painlessly trapping, spaying/neutering, vaccinating, and returning undomesticated or wandering community dogs to their colonial possessions. A nonprofit colony health professional who serves food, and safe housing and monitors the dogs' health is required for successful TNVR. A TNVR has been proven to be the most cost-effective, convenient, and humane method of stabilizing dog populations.

There are approximately at least three million stray dogs in Pakistan, with 50,000 excised each year. Annually, over 80,500 dog bites are reported in Pakistan, and up to 5,000 people die from rabies. According to animal rights NGO Four Paws International, a single female dog can give birth to more than a dozen puppies annually, or more than 80 in her lifetime. Without homes to provide basic shelter, food, and medical attention, puppies and kittens are commonly left to fend for themselves throughout Pakistan and other countries that do not provide adequate care for stray animals. Most of these babies do not survive their first weeks of life because they are born in less-than-ideal conditions; during the winter season, many are frozen to death, end up starving when their mothers are brutally murdered in traffic, are threatened and eaten by other animals, and are sometimes deliberately killed by living beings. The CDRS Benji Project is attempting to put one workable alternative to the test with Pakistan's first dedicated TNVR program, which aims to decrease the number of stray dogs and the suffering they have been forced to endure for decades, while also making the dogs safe and secure for the outdoor spaces by immunizing them and training them to be less violent. Apparently, TNVR is the only humane way to help reduce the number of dogs roaming the streets.

Equids (donkeys, horses, and mules) play an important role in economic growth in low and middle-income countries. Donkey carts are used to carry building materials, commercial produce, and garbage in Karachi. However, the utilization of donkeys in waste management has received little attention to date.

Around 200 donkey owners were interviewed who utilize their animals to transport trash, and they also conducted assessments of 50 families that used cart donkeys for waste collection. Representatives of the town committee and specialists in animal healthcare were interrogated.

For 89% of the donkey owners whose masters were contacted, trash collection was their primary source of revenue. Men, women, and children from all ages of the home engage in trash collection. The plurality of donkey cart operators who were interviewed acknowledged that if donkey carts were not offered, there would be a significant accumulation of trash.

According to studies, the condition of donkeys engaged in trash pickup is painful and 78% of them have had their muzzles chopped off. Working animals are generally exposed to abuse and torture for social, ethnic, anthropological, agricultural, or reportedly medical reasons. A large percentage of donkeys (66.7%) had superficial knee sores, which could have been spurred on by overloading and/or rough, muddy roads.

Donkeys can be tremendously utilized to boost the economy very easily. They are widely utilized in farming and transportation in rural areas; they pull carts, transport items to markets, and also get water from wells. They are primarily employed in construction, transportation of people and goods, and trash collection in urban areas. They boost the economic possibilities of an area by enabling their owners to work. In Ethiopia, there is a proverb that states, "If someone doesn't own a donkey, then they are a donkey."

Working animals provide an additional source of revenue to the country's economy that enables individuals to save money, invest in expansion strategies, and fund educational opportunities. By reducing the time and labor required for fieldwork or farm transportation, working donkeys increase productivity.

According to research, women frequently use working animals to perform chores that they would otherwise be required to complete themselves, such as transporting products and getting water. They also raise women's status in the community by allowing them to take part in the economy. Donkeys give a person the extra money they need to send their kids to school. They also aid parents in giving children the time and attention they seek at home by executing duties that would otherwise be performed by adults.

Therefore, the goal is to find alternatives that can strengthen the nation's economy rather than completely stopping the export of animals. It is quite simple to just breed animals for profit, but it takes courage, guts, and labor to create effective systems for future generations that might offer a better outlook on the nation in the years to come.

Successful recovery from Bovine papillomatosis in cattle using autohemotherapy and Thuja drops - A case study

By Dr Aftab Hussain, Dr Amar Nasir, Dr Ans Nadeem, Dr Asad Fayyaz
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Introduction: Cutaneous papillomatosis is a skin condition in cattle and buffalo. This is a viral infection, that replicates in the nucleus of squamous epithelial cells, and then can induce warts in the skin and mucosal epithelium of most large vertebrate animals. Papillomatosis is a type of benign and opportunistic tumor growth. In cows and buffaloes, warts appear on the skin, teats, and upper gastrointestinal tract, and urinary bladder. These papilloma are composed of a hyperplastic epithelium which is supported by a discrete dermal tissue containing dilated capillaries. This disease is contagious and generally spreads by direct contact with an infected animal and enters to animal's skin by cutaneous abrasions. It gains its economic importance by interference at the time of sale and show of animal in market. As this is extensive in nature, so animal loses its condition more abruptly when also infected by secondary bacterial infection. Teat warts also interfere while milking the animal either by machine or manual milking and milk suckling by calf. They are much more painful and do not allow farmers to touch teats and do not allow milking. Skin gets dull and dry and there is an allergic appearance of skin. These warts have an appearance like protruding nodules. Warts may revert spontaneously or occasionally persist and, in the presence of additional critical genetic and environmental factors, these warts may lead to cancer. The transformation and multiplication of this virus infected basal cells, lead to warts formation. The most of warts are benign and do not proliferate indefinitely causing cancer. Immuno-repressive factors of body important role in progression of bovine papillomatosis, which may include internal and external parasites.

Etiology: Bovine Papilloma Virus which is small (52-55 nm), non-enveloped, double-stranded DNA oncovirus caused this disease. Bovine papillomavirus (BPV) produces specific characteristic gross lesions which exhibit endophytic (inverted) or exophytic (proliferating outward) nature. 18 sub-types (BPV-Type 1, 2, 3, …, 19) of this virus were determined and initially studied. Twelve serotypes were also found upon initial research and now this number has reached fourteen. The main sub-type involved in this condition are Bovine Papilloma

Continued on Page 13

Effects of environmental changes on animals and their solutions

By Dr Gulzar Ali Junejo
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The biggest problem in the world right now is climate change and its effects. The world has to face the negative effects of environmental change due to the continuous increase of environmental degradation and radiation or toxic gases. Due to this change, there has also been a difference in the weather conditions. Sometimes very cold or very hot or never at all, sometimes very drought, flood or rain, never at all, it can be said that the severity of the weather has become unreliable .The environment around us is constantly changing. The reason for which is the change of natural conditions due to the manipulation of the natural environment by humans, as well as the misuse of things by humans, industrial and mechanical development. It is a clear fact that climate change has a direct effect on humans, plants, animals and birds. Due to this change and the emission of toxic gases, a quarter of the earth's life (birds, animals and plants) is dying.

In terms of climate change, South Asia, especially Pakistan, is at the top of these countries. According to recent reports, Pakistan is the eighth country in the world that is affected by severe climate change. In Pakistan, climate change is also having a negative impact on the economy, which will amount to billions and crores of rupees. Especially the environmental change in Sindh can be estimated from the fact that natural disasters have been occurring continuously from 2010 to 2022 and they are continuously increasing. Sometimes in the form of river floods, sometimes droughts, rainy floods, floods, extreme heat or extreme cold, etc., climate change has been a long-term process, but the effects of this change have been felt in the last ten or twelve years. have been done. At first there were not so many.

According to an estimate, in the year 2022, thousands of people and animals will die of hunger, millions of people will be displaced, along with roads, places, agriculture and agricultural sectors such as crops, hay and domestic animals will be severely affected. Population, unplanned urban expansion and loss of natural resources, besides lack of public awareness of environmental issues, mismanagement of water and solid waste have further worsened the climate. As a result, Pakistan is suffering from constant losses. In this context, the Ministry of Climate Change has taken various measures to reduce the effects of environment and climate.Due to the sudden change in the environment and weather, there is stress on animals and humans due to the lack of adequate food and shelter. Due to which their immunity (ability to fight diseases) is affected. In contrast, disease-causing germs are more powerful and mobile. As a result, weak animals fall under their attack and thus become sick. Although the general scientific opinion is that animal diseases occur in a specific climate and region. But on the contrary, in the last few years, it has been seen that due to environmental change, these diseases are no longer seasonal. Now these diseases can appear in any season and region and anywhere, meaning that diseases that occur in winter also appear in summer and diseases that occur in summer also occur in winter, especially infectious and non-infectious diseases in animals, which Due to this, the animal is constantly under pressure and its productive capacity is reduced or not at all, germs take advantage of this pressure and attack with more speed and force. Usually, small animals like goats used to suffer from diarrhea and stomach diseases in summer, but now they have winter diseases like diarrhea (P, P, R), pneumonia (C, P, P). , and anthrax have also been observed, meaning that the disease-causing germs are becoming more potent. In the same way, in large animals, gall ghout / ghatiyar and samara / mahadro are common diseases in rainy season. But now these diseases are common in animals throughout the year and winter diseases such as black leg, anthrax, pox and other diseases are present almost throughout the year. Due to the intensity of heat, water deficiency (Oso) occurs in animals, which shows signs such as open mouth breathing, dry mouth, sunken eyes, lethargy, severe fever, hair loss, etc.

The effects of climate change cannot be eliminated but they can be mitigated to some extent or their capacity to cope or cope with these changes can be increased. Have your pet take a year-round vaccination course. Large animals should be vaccinated three (3) times a year against distemper or distemper, that is, every four months. In addition, distemper vaccine should be given every nine months, distemper every year and black leg vaccine every ten months.

Small animals should be vaccinated against diarrhea every four months, distemper and distemper, measles vaccine every year, and mother's vaccine every ninth month.

To avoid extreme heat, animals should be kept close to water for 24 hours, the amount of dry grass should be reduced and green grass should be used abundantly, animals should not be allowed to graze outside from 11 am to 4 pm. Medicines, vaccines and other medicines should not be applied during hot hours (from 11 am to 4 pm). A suitable place for rescue should be arranged and in case of any emergency contact the nearest veterinarian.

Enzootic Bovine Leukosis in Cattle and Buffalo; An Overview

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Introduction

Bovine leukosis is a viral disease caused by bovine leukemia virus (BLV). BLV is a single strand, diploid RNA virus belongs to family *Retroviridae,* genus *Deltaretrovirus*. BLV mostly affects the cattle but buffalo may also be infected with the virus. Enzootic Bovine leucosis is characterized by the development of tumors of lymphatic tissues (lymphosarcoma) such as thymus, spleen and lymph nodes. These specialized organs are important part of defense system that protects the animals from infection. Tumors may be found through the body, enlargement of external or superficial lymph nodes is common.

Economic Importance

Livestock contributes 61.9% to the agriculture value addition and 14% to the overall GDP and play substantial role in rural socio economic development. In livestock sector, Cattle and Buffalo play a significant role in fulfilling the milk and meat need of consumers. The current population of cattle and buffalo in Pakistan stands at 53.4 million and 43.7 million according to economic survey of Pakistan 2021-2022. The current milk production records describe a contribution of cattle and buffalo was 24,238 and 39,503 tons respectively in the overall milk production of the country. The current meat production records of cattle and buffalo contributes 2,461 tons of total production.

Economic Losses due to BLV

Bovine leucosis is economically important disease of dairy industry. In USA and Canada approximately 85-90% of herds are infected with BLV. Annually, the cost to a dairy herd with the average prevalence of BLV is approximately $270 per cow in the herd. Economic losses as a result of decreased in milk production, high death rates, reproductive failure, increased veterinary care expenses and premature culling of the infected animals resulting in drop in export competitiveness.

Transmission

The BLV can be transmitted through both horizontal and vertical routes. The virus is present in white blood cells (immune cells) called lymphocytes found in blood, milk and tumors. The critical source of BLV infection are fresh blood, saliva, nasal discharge, milk and semen of BLV seropositive animals. Artificial insemination (AI) and natural service might also be incriminated in the vertical spread of BLV. Although the risk of in vitro infection with semen from BLV-infected bulls is negligible, the use of infected bulls in natural service has been positively associated with BLV prevalence. So, bulls that are used for natural mating or AI must be screened to ensure that they are BLV-free before the breeding season to aid in the limitation of virus spread.

Clinical Findings

Mostly the infected animals about 70% with BLV are asymptomatic. About 30% of BLV infected developed persistent lymphosarcoma and 1-5% may develop tumors. The clinical signs may include, loss of body weight, loss of appetite, weakness and decreased in milk production are all signs of lymphosarcoma. largement of all lymph nodes, ocular protrusion, conjunctival prolapse, abomasal ulceration, congestive heart failure. Animals became frail and recumbent.

Diagnosis

Diagnosis is usually based on clinical signs, history and postmortem examination. As the disease is asymptomatic so, difficult to diagnose the disease on the bases of clinical signs. But screening is done by using serological tests AGID and ELISA and confirmation of virus through PCR or sheep bioassay.

Differential Diagnosis

Sporadic bovine leukosis
Congestive heart failure due to traumatic Pericarditis
Lymphadenitis due to tuberculosis and Actinobacillosis
Compression of spinal cord
Fat necrosis

Zoonotic Importance

In 1976, Graves and Ferrer published the first investigation on the possible transmission of BLV in human cells, making it a recognized zoonotic disease. According to different studies, BLV can infect human cells and the virus is biohazard to people. Breast cancer were observed to be more likely in countries where BLV infected foods are commonly consumed.

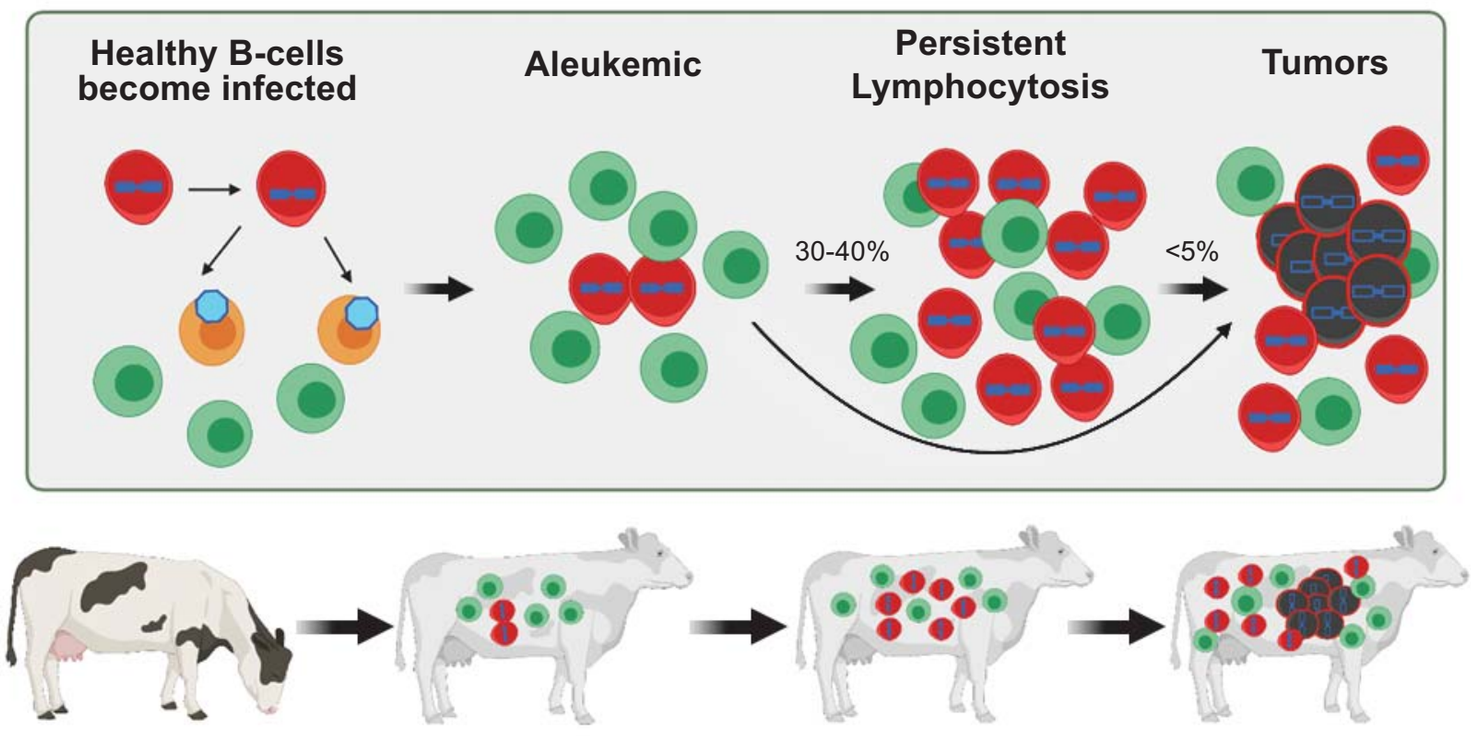
Treatment

There is no specific treatment for enzootic bovine leucosis, as the disease is viral. In this disease the immune system of the animal mainly compromised. That's why must use antibiotics, vitamins and minerals in order to treat the animal.

Prevention and Control

As such no treatment was existing for BLV. So, preventing the introduction of BLV in dairy herds good management practices are important to reduce the transmission of BLV. Screening test should be used for newly purchased animals. Seropositive animals should be separated from the healthy animals. Do not feed milk or colostrum of BLV infected animals to calves.

BLV Disease Progression



An Overview of Lumpy Skin Disease

By Muhammad Salman
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Lumpy Skin Disease is a viral disease which is caused by the Lumpy Skin virus (LSDV), a member of Capripox virus. It belongs to genus of the poxviridae family. Recently, Lumpy Skin Disease (LSD) has been spread as a terrifying threat to cattle in Southeast Asia. Its clinical signs are nodules resembling lump in mucous membrane and external skin. Fever and swollen lymph nodes are also considering preliminary noticeable clinical signs of this devastating disease. It is a vector-borne disease and arthropods are made in perpetrators. Viremia results from an incubation period of one to four weeks. Decreased milk production and quality, udder infection, thinness, poor-quality hides, reduction of draught power, miscarriage, infertility, restriction to meat consumption, greater morbidity are it's sailent clinical signs. These clinical signs lead to a severe socioeconomic collapse. Animals of any age and gender are susceptible to the disease. Depending upon the immune status of animals that animals and the frequency of mechanical vectors morbidity rates varies in different animals. Primarily the disease was endemic in most SubSaharan regions of Africa, come exiting to the Middle East, Europe, and Asia. Proper SOP's, vaccination, strict quarantine measures and Limited movement of livestock along with vector control could be effective for preventing the spread of disease. This review aims to summarize the latest developments in the epidemiology of LSD with the focus on the transboundary spread, possible emergency, and economic implications on Pakistan.

Biology of LSDV: The virus that causes LSD is an enveloped, linear, ovoid, double-stranded DNA virus within the family Poxviridae and genus Capripoxvirus. The only serotype LSDVof; "Neethling" was first identified in South Africa and presented similar antigenic properties to goat and sheep pox virus. The virus is characteristically impervious to many physical and chemical agents and remains constant between pH 6.6 and 8.6, but is prone to a higher alkaline environment. It goes through exclusive survival ability in necrotic skin nodules (33 days), desiccates crusts (35 days), infected tissue protected from sunlight (6 months), and is air-dried at room temperature (minimum 18 days). Heat resistance is flexible but most isolates are inactivated at 55ºC for a few hours or 65 °C for 30 minutes. The virus is sensitive to highly alkaline or acidic solutions and detergents containing lipid solvents. The organism becomes defenseless in daylight while inactivated by ultraviolet radiation and at 55 °C for one hour. In addition, LSDV shows a 20% susceptibility to chloroform, 1% formalin, ether, 2% phenol, 2-3% sodium hypochlorite, and 0.5% quaternary ammonium compounds, dilution of iodine compounds, and detergents containing lipid solvent.

Risk factors: Risk factors for LSD severity are identified in 3 basic categories. All factors along with their states are listed below.

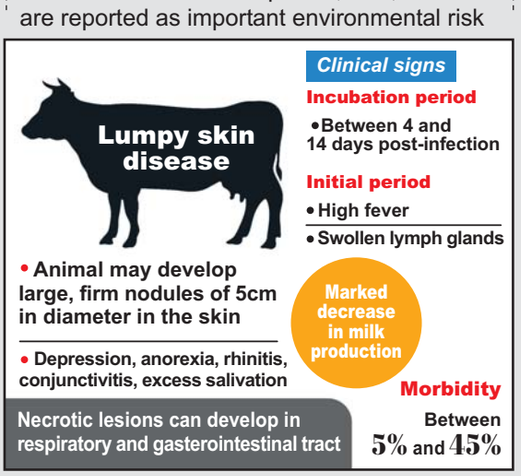
Host-related factors: LSD is a host-specific disease that affects severely cattle and Asian water buffalo (Bubalus bubalis). Buffaloes have significantly lower morbidity than cattle. Cattle of both sexes are susceptible to viruses regardless of their age. The degree of disease severity is determined by host susceptibility and immunological status. Native (Bos indicus) breeds are less vulnerable compared to clinical disease to Bos Taurus. Moreover, young animals showed higher susceptibility and severity than old cattle. The role of wildlife as potential must be clarified

Factors related to the agent

LSDV is remarkably stable under fluctuations in ecological virus tank assumptions. It is resistant to drying out and inactivation, can survive in dried scabs, and also resist freezing and thawing. The virus was reported to pour from the nose, tears, and pharynx exudation of diseased animals and the like in saliva, blood, milk, and semen. In infectious cattle blood, the virus was isolated in approximately 8.8 days and viral DNA within 16.3 days. It can take up to 22 days in semen and 11 days in saliva in the appropriate environment. Existence for a long time in fomites, clothing, and equipment was proved but no indication was found in insects exceeding four days.

Environment and driving factors

LSDV can infect, persist and develop an internally receptive host while simultaneously acquiring a suitable environment. Warm and humid climatic conditions that favor a higher overabundance of mosquitoes, flies, and ticks are reported as important environmental risk factors. The disease is mostly seen during the wet season when blood-sucking insects are abundant in the surroundings. Few studies reported higher morbidity in intensive farms compared with small backyard farms. Common grazing watering points can facilitate the circulation of the virus vector transfer.



Transmission of LSDV: The transmission mechanism of LSDV is useful in that is, an evaluation of the epidemiology of the virus contributes to a progressive control strategy and the disappearance of the disease [1,38]. The epitome of the possible. An embodiment of the possible modes of transmission of LSDV. Cattle infected with LSD can infect uninfected cattle via a vector or non-vector transmission. Non-vector transmission Although the ineffective, non-vectorial transfer of LSD happens when clinically affected animals appear in contact with contaminated materials unnecessarily biological or mechanical vectors. Infectious LSDV is excreted with saliva, nasal and eye discharges, contaminating common areas for eating and drinking, and disease spread. In Vector transmission the role of arthropods in the transmission of this virus has been experimentally confirmed. Several blood-sucking hard ticks, such as Rhipicephalus appendiculatus (brown ear tick), Rhipicephalus decoloratus (blue tick), and Amblyomma hebraeum, the Aedes mosquito aegypti and the flies Stomoxys recalcitrant, Haematobia irritans, and Musca domestica have been implicated in the spread of LSDV in sub-Saharan Africa. in the tick host is LSDV transcardially, transovarially transmitted at low temperature. The virus can be spread over short distances by a few kilometers, and even longer distances due to unrestricted movement of animals around the world boundaries.

Health and Economic Impact

The socioeconomic impact of LSD can be direct or indirect and has been registered by several significant industries and sectors. A sharp drop in milk production is fast and above all a visible effect directly linked to LSD in the South Asian region which raised 21% of the world's dairy livestock. According to the Turkish investigation, there was an impact on the average milk yield of cows decreased by 159 L each lactation. However, LSD-infected beef is not prohibited from entering the food chain, despite the possibility of secondary bacteria in the meat infection. Estimated beef reductions of 1.2% and 6.2%. production per year for local breeds and Friesian breeds cattle were reported in Ethiopia or LSDV infection. After all, possible violations, scars, or lesions in raw hides or cattle hides may worsen skin value, as in the case of strongly LSD on the skin of the affected animal. Bangladesh leather is highly admired for its good quality and 56% of the leather is made from cattle, which contributed 3.5% annual export of the country. . Similarly, to have a world export position ninth, India earns annual revenue of US$8,500 million for hides and skins products. Pyrexia and lameness prevent the use of animals for draft purposes. LSD can be transmitted into breeding animals through artificial insemination s infected bull semen, resulting in a lower rate of pregnancy. What's more, a few cheers complications including mastitis, orchitis, miscarriage, and bull infertility also causes huge economic losses for farm owners. The indirect economic impact of LSD is considered trade restrictions, immunization, quarantine and treatment costs, feed and labor costs, extrusion, maintaining farm biosecurity, etc.

Diagnosis of LSD: Clinical history, clinical signs, and symptoms of infected animals can be used to form a presumption Diagnosis of LSD. During a nodular skin lesion appearance stage, a confirmatory laboratory diagnosis is performed. There is no diagnostic test tool on the device market]. Confirmatory tests are mostly in form of conventional polymerase chain or real-time polymerase chain reaction (PCR) specific for Capri poxvirus. Specimens obtained from skin lesions bring more positive results in PCR than blood or those taken from septic viscera as a result of a greater load of viral particles protected in the nodule]. These can be fluids such as saliva, nasal swab, or whole blood taken from clinically infected animals for viral isolation and molecular testing. In addition, the disease can be detected using serological tests using Enzyme-linked Immunosorbent Test (ELISA), indirect fluorescent antibody test (IFAT), Indirect immunofluorescence assay, Virus Neutralization test (VNT), and serum neutralization Test (SNT). However, the ELISA was confirmed experimentally showing higher

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Pak-Afghan Trade

Continued from front page

between the two countries that we need to foster and develop.

While hundreds of trucks carrying Afghan veggies are transporting them, local vegetable prices have risen dramatically. 7 kg of onions, which supposedly used to cost approximately 50 Afghanis, nowadays are 200 Afghanis, according to sources in the local media. Tomatoes now cost 400 Afghanis per kilogram, as opposed to 70 or 80.

According to Pakistan's import of surplus goods from Afghanistan, which was impacted by the floods, Afghanistan exports appear to have surged. In contrast to previous years, when Pakistan exported vegetables to Afghanistan, this year was the "reverse around".

Successful recovery ...

Continued from page 10

sensitivity and specificity compared to IFTA or VNT. AND a relatively new test called Immuno-peroxidase Monolayer The test (IPMA) has been identified for potential use in the Diagnosis of LSD. It is a cheap and convenient test, adapted to a low level of biosecurity, and has a higher sensitivity and specificity than VNT and commercial ELISA. At autopsy, small nodules like smallpox buttons can be noted on the mucosa of multiple viscera and cavities such as the tongue, oral and nasal cavities, trachea, pharynx, lungs, testes, bladder, etc.

Treatment and Control Strategies: The prophylactic effect of LSD is hardly attempted in epidemic situations other than symptomatic supportive treatment such as wound repair sprays and antibiotics to limit secondary bacterial infection of skin abrasions. Anti-inflammatory drugs and intravenous fluid therapy may be given to increase appetite although it has no fruitful feedback.Not precise antivirals are available for treatment led, i.e. prevention through vaccination is the only effective way to limit the disease Prophylactic immunization with homolog (Neethling strain) or heterologous live attenuated vaccine (sheep/goat pox vaccine) is the best medical LSD prophylaxis Recently Bangladesh bought "Lumpyvax", a commercially available vaccine from MSD Animal Health for immediate control over the current and seemingly uncontrollable outbreak of LSD on Earth. In addition to medical prophylaxis, several other hygienic prophylactic measures in the zoo are useful for the control of LSD in domestic animals. These include movement control, limited grazing stamping from severely affected animals, appropriate disposal of infected bodies washing with a disinfectant contaminated premises use of pest repellents strict quarantine and finally aware of the disease campaigns aimed at veterinary students and professionals, farmers, herdsmen, animal traders, truck drivers, and artificial inseminators.

Conclusion and Recommendations: To recap, this review summarizes the eight virgins' hotspots and their extent for lumpy skin disease (LSD) in Southeast Asian cattle. He has a disease become an extreme threat to marginal farmers. Until the nineteenth century, the disease was endemic in larger Africa, which then spread to the Middle East, Eastern Europe and the Russian Federation, and recently Asia. Repeated attacks on Lon v vulnerable areas attracted ate the nation's scientific community. Therefore, it is unnecessary to say that it is high time to anticipate emergency preparedness to limit the cross-border spread of this disease huge. Attention should be focused on vector control, movement restriction, hard quarantine, improved vaccination programs, and proper veterinary med medical, and general sanitary management of the farm should be avoided invasion and spread of disease. That is, studies encourage scientists to focus on widening the notification source of infection, molecular detection and characterization of the causal agent, and finally epidemiology and ecology of LSDV in Southeast Asia.

An Overview of Lumpy ...

Continued from page 12

Virus-1 (BPV-1) and Bovine Papilloma Virus-2 (BPV-2).

Signs: Warts of different size (2-5 cm), cauliflower growth and pedunculated appear on the skin, mucosal epithelium, teats, upper gastrointestinal tract, and urinary bladder. Papilloma are composed of a hyperplastic epithelium which is supported by a discrete dermal tissue containing dilated capillaries. different sized cauliflower growth and pedunculated cutaneous

Description: This study was conducted in a Holstein Friesian cattle presented with small warts on its skin at the neck area. Few warts were also present near eyes and on the lower and upper jaw. Owner complained that these warts appeared 2 weeks ago and were small in size. Owner claimed that he purchased this animal recently. Warts appeared 4 days after the purchase of the animal. He applied some ointments locally on warts but no recovery was observed even after one week of treatment. He called a para-vet for treatment, and he administered some antibiotics but still, no recovery was observed even after 5 days of consecutive treatment. When the owner did not observe any recovery, he presented his animal at the clinic for a specific treatment purpose.

Treatment: We observed the animal and examined it thoroughly. Warts' size was ranging from 0.5 to 1 cm in diameter. Upon examination, we diagnosed it as warts that appeared after infection with bovine papillomatosis. Then we started treatment with the technique of autohemotherapy as described in many studies worldwide. Thuja drops were also applied locally on warts and prescribed to the owner to apply daily for 2-3 times a day. Autohemotherapy was performed by collecting 20ml venous blood and injected 10ml via intramuscular (IM) route and 10ml via subcutaneous (SC) route. Anti-histaminic agent (Inj. Antil 20ml) was also administered via IM route to prevent any allergic reaction. We prescribed to the owner to get this treatment repeated after every week for consecutive 4 weeks. Ivermectin was also administered 10ml via SC route.

We followed up animal after every treatment. This treatment was responding to the condition in a positive way. We observed a reduction in the number of warts and also the size was decreased than before. A few small warts were left behind after 2 weeks. Treatment was still going on. After 28 days, warts totally disappeared and no signs remained behind. Owner was very happy and satisfied with the results. Moreover, he was happy to have his animal recovered without any costly treatment.

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بقیہ: زرعی زمین کے تجزیہ کی اہمیت

ان کا سائنسی طریقوں سے تجزیہ کرتے ہیں۔ اور زمینی تجزیاتی رپورٹ جیسے عام طور پر زمین کی ٹیسٹ رپورٹ کہتے ہیں، کسان کو دی جاتی ہے اس ٹیسٹ رپورٹ میں ضروری سفارشات بھی شامل ہوتی ہیں جس پر عمل درآمد کر کے کسان اپنے کھیتوں سے زیادہ منافع بخش پیداوار حاصل کر سکتا ہے۔

AZRC, D.I.Khan اور اس کا ادارہ ARDI مٹورہ، لکی مروت میں ہماری سائل سائنس (مٹی اور پانی کی جانچ۔ ٹیسٹ) لیبارٹری معیاری، بروقت اور جانچ کے قابل اعتماد خدمت فراہم کرتی ہیں۔

لیبارٹری میں ہونے والے ٹیسٹ اور ان کی اہمیت

1. Soil PH /مٹی کا تعامل:- پی ایچ مٹی کے غذائی اجزاء اور کیمیکلز کی مقدار جو مٹی کے پانی میں موجود ہوتے ہیں متاثر کرتی ہے۔ یہ اجزاء پودوں کو دستیاب ہوتے ہیں جبکہ دیگر کچھ غذائی اجزاء تیزابی حالات میں زیادہ اور کچھ الکلائن اساسی حالت میں زیادہ دستیاب ہوتے ہیں۔

2. EC/TDS برقی موصلیت:- ای سی مٹی میں نمکیات کی مقدار جانچتا ہے۔ یہ غذائی اجزاء کی دستیابی اور کمی، مٹی کی ساخت، (Soil Texture) اور پانی کی دستیاب صلاحیت کا بہترین اشارہ ہے یہ فصل کی پیداوار، بعض فصلوں کے لیئے مٹی کی مناسبت اور پودوں کے استعمال کے لیئے دستیاب غذائی اجزاء کو متاثر کرتا ہے۔

3. OM (Organic Matter):- (مٹی کا نامیاتی مادہ)، مٹی کا نامیاتی مادہ نائٹروجن، فاسفورس، پوٹاشیم، کیلشیم، اور میگنیشم جیسے ضروری غذائی اجزاء کو ذخیرہ کرنے اور فراہم کرنے اور زہریلے عناصر کو برقرار رکھنے کی مٹی کی صلاحیت کو نمایاں طور پر بہتر بناتا ہے۔

4. نائٹروجن (Nitrogen):- پودوں کو اپنی نشوونما اور تولید کے لیئے نائٹروجن کی ضرورت ہوتی ہے۔ نائٹروجن کلوروفیل کا ایک لازمی جزو ہے۔ یہ تمام پروٹین اور انزائم کا اہم حصہ ہے پوری دنیا کی مٹی میں نائٹروجن کی کمی پائی جاتی ہے اس کی کمی کو پورا کرنے اور پودے کی صلاحیت کو بڑھانے کے لئے نائٹروجن کھادوں کا استعمال کیا جاتا ہے۔

5. فاسفورس (Phosphorus):- پودے میں فاسفورس کا بنیادی کردار نمو، تولیدی عمل اور فوٹوسینتھیسس (Photosynthesis) کے ذریعے پیدا ہونیوالی توانائی کو ذخیرہ اور منتقل کرنا ہے مناسب فاسفورس لیول جڑوں کی نشوونما، سردیوں کی سختی کو برداشت کرنا اور کھیتی کو تحریک، پختگی کو تیز کرتا ہے۔ یہ نائٹروجن کے بعد دوسرا پودوں کا اہم غذا مانا جاتا ہے۔

6. پوٹاشیم (Potassium):- پوٹاشیم پودوں کے بافتوں میں پانی، غذائی اجزاء اور کاربوہائیڈریٹس (Carbohydrates) کی نقل وحرکت سے وابستہ ہے۔ یہ پودے کے اندر انزائم ایکٹیویشن (Enzyme Activation) میں مدد کرتا ہے۔ جو پروٹین، نشاستے اور ATP کی پیداوار کو متاثر کرتا ہے۔ ایٹی پی کی پیداوار فوٹوسینتھیسس (Photosynthesis) کی شرح کو منظم کر سکتی ہے۔

7. مائیکرونیوٹرینٹس (Micronutrients):- یا عناصر صغیرہ یہ پودے کے وہ ضروری اجزاء ہیں جو بافتوں میں کم مقدار/ٹریس میں پائے جاتے ہیں لیکن پودوں کی نشوونما میں لازمی کردار ادا کرتے ہیں۔ ان غذائی اجزاء کے بغیر پودوں کی غذائیت سے سمجھوتا کیا جائے گا۔ جس کے نتیجے میں پودوں کی پیداواری صلاحیت میں ممکنہ کمی واقع ہو سکتی ہے۔

8. زمین کی بافت (Soil Texture):- زمین کی بافت کی درجہ بندی بالحاظ سیر شدگی حسب ذیل ہے۔

19 فیصد تک	ریتلی	ریتلی اور ریتلی میرا زمین میں پنپنے گوارہ، مونگ پھلی، باجرہ اچھے کاشت ہو سکتے ہیں۔ میرا زمین میں تقریباً تمام فصلیں کاشت ہو سکتی ہیں۔ جبکہ بھاری میرا یا چکنی زمین چاول اور گنے کی کاشت کے لیئے موزوں ہیں۔
20 سے 30 فیصد تک	ریتلی میرا	
31 سے 45 فیصد	میرا سے درمیانی بھاری میرا	
45 سے 60 فیصد	بھاری میرا یا چکنی میرا	
60 فیصد سے زائد	چکنی	

مٹی کا تعامل (Soil PH)

7.0 سے 7.5	زمین میں موجود قسم خوراک کی عناصر پودوں کو باآسانی میسر آتے ہیں۔
7.51 سے 8.0	زمین میں موجود قسم خوراک کی عناصر قسم میسر آتے ہیں ماسوائے لوہا، میگنیز اور بوران کے جن کی دستیابی قدرے کم ہو جاتی ہے
8.1 سے 8.5	عناصر کبیرہ میں فاسفورس کا حصول قدرے مشکل ہوتا ہے لیکن عناصر صغیرہ بے حد کم ہو جاتی ہے۔
8.5 سے زیادہ	زمین میں حیازیت (نمک کی بہت زیادتی (Sodicity) کا سلسلہ پیدا ہو جاتا ہے جس کا حتمی کامیاب کاشتکاری کے لیئے ضروری ہوتا ہے۔

برقی موصلیت (EC)

EC	کیفیت زمین	فصلات پر اثر
0-4 سے کم	کلراٹھی نہیں	فصلوں کی پیداوار پر کوئی برا اثر نہیں پڑتا
4 سے زیادہ اور 8 سے کم	درمیانی کلراٹھی	نازک فصلوں مثلاً آلو، تمباکو وغیرہ کی پیداوار کو متاثر کرتی ہے
8 سے زیادہ اور 16 سے کم	زیادہ کلراٹھی	اکثر فصلوں کی پیداوار متاثر ہوتی ہے
16 سے زائد	بہت زیادہ کلراٹھی	صرف نمیات برداشت کرنے والی فصلوں کاشت کی جا سکتی ہیں

نامیاتی مادہ فیصد (Organic Matter%)

نامیاتی مادہ%	کیفیت زمین
0.86 فیصد سے کم	نامیاتی مادہ کے لحاظ سے زمین کمزور ہے
0.86 تا 1.29	نامیاتی مادہ کے لحاظ سے درمیانی زمین ہے
1.29 سے زائد	نامیاتی مادہ کے لحاظ سے اچھی زمین ہے

دستیاب پوٹاشیم (Available K mg/kg)

فاسفورس (mg/kg)	کیفیت زمین
7 تک	زمین دستیاب (P) کے لحاظ سے کمزور ہے
7.1 تا 13.0	زمین دستیاب (P) کے لحاظ سے درمیانی ہے
13.0 سے زائد	زمین دستیاب (P) کے لحاظ سے اچھی ہے

دستیاب پوٹاشیم (Available K mg/kg)

پوٹاشیم	کیفیت زمین
80 تک	زمین دستیاب کے لحاظ سے کمزور ہے
81 تا 180 تک	زمین دستیاب کے لحاظ سے درمیانی ہے
180 سے زائد	زمین دستیاب کے لحاظ سے اچھی ہے

پاکستان کا پہلا آزاد و وٹرنری رسالہ
اے۔وی۔این
ایگرو وٹرنری نیوز

زرعی زمین کے تجزیہ کی اہمیت

تحریر: بمہ عزیز، ڈاکٹر نومان لطیف، ڈاکٹر محمد جمیل، محمد ارشد خان، امتیاز خان، عمران قاضی۔
پاکستان زرعی تحقیقاتی کونسل۔ زرعی تحقیقاتی مرکز برائے خشک علاقہ جات، ڈی آئی خان۔

زرعی زمین کے تجزیہ سے مراد زمین میں موجود غذائی اجزاء اور دیگر عوامل کا پتہ لگانا ہے جو کہ پودوں اور فصلوں کی پیداوار بڑھانے کے لیئے بہت ضروری ہوتے ہیں۔ غذائی اجزاء میں نائٹروجن، پوٹاشیم، فاسفورس، سلفر، کیلشیم، میگنیشم، جست، تانبا، لوہا، مینگانیز اور بوران زیادہ ضروری ہیں۔ جبکہ دیگر عوامل میں زمین میں موجود نمکیات کی اقسام اور مقدار، زمینی تیزابیت کی مقدار، نامیاتی مادے کی موجودگی زمین کی ساخت اور پانی جذب کرنے کی صلاحیت اور زمین کے ہوادار ہونے کی صلاحیت کے متعلق معلومات کا جانچنا اور پتہ لگانا بہت ضرروی ہے۔ جس طرح انسان غذا کے بغیر نہیں رہ سکتا اسی طرح ہماری فصلیں بھی غذائی اجزاء کی غیر موجودگی میں کمزور رہ جاتی ہیں۔ اور کم پیداوار دیتی ہیں۔ انسانی جسم کی طرح پودوں کو بھی پانی اور ہوا کی ضرورت بہت اہمیت کی حامل ہے۔ زمین میں موجود زیادہ نمکیات کی مقدار کلراٹھی یا تھور زدہ بیمار زمینوں کی نشانی ہے۔ زمین کی تیزابیت کا کم یا زیادہ ہونا پیداوار کی صلاحیت پر اثر ڈالتی ہے۔ زمین میں کم غذائی اجزاء کی موجودگی میں مختلف کھادوں کی سفارشات مختلف فصلوں کے لحاظ سے مرتب کی جاتی ہیں تا کہ زیادہ ار منافع بخش پیداوار حاصل کی جا سکے یہ سب معلومات اس بات کی نشاندہی کرتی ہیں کہ زرعی زمینوں کا تجزیہ بہت اہمیت کا حامل ہے۔

زمین سے نمونے لینے کا طریقہ

تجزیہ اراضی میں نمونے کو اولین حیثیت حاصل ہے اس کے ذریعے زمین کی زرخیزی اور دوسرے خواص کا بخوبی علم ہوتا ہے۔ نمونے لینے کے مندرجہ ذیل اصول یہ ہیں۔

1. کھیت سے مٹی کا نمونہ لیتے وقت کا شتکار کا خود موجود ہونا ضروری ہے۔ تا کہ اس کے موجودہ اور سابقہ ریکارڈ کے مطابق کھیت کے اس حصے سے نمونے لینے چاہیئے جہاں پر نامیاتی مادہ استعمال نہ کیا گیا ہو۔
2. مٹی کا نمونہ حاصل کرنے کے لیے عام طور پر "آگر" کا استعمال کیا جاتا ہے۔ اس کے علاوہ "کسی" یا "کھرپہ" کی مدد سے سفارش کردہ گہرائی تک نمونے لیے جاسکتے ہیں۔
3. نمونے حاصل کرنے کے لیئے پہلے کھیت میں ہل چلا کر زمین کو پہلے ہموار کر لینا چاہیئے۔
4. کھیت سے صرف ایک جگہ نمونے لینے سے آپ صحیح نتائج حاصل نہیں کر سکتے۔ کھیت سے نمائندہ نمونے حاصل کرنے کے لیئے کھیت کو 5 سے 10 چھوٹے پلاٹوں میں تقسیم کریں اور ہر پلاٹ سے نمونے لے کر ان کو آپس میں ملائیں۔ یہ آپ کا نمائندہ نمونہ ہوگا۔ جب کھیت کو تقسیم کریں تو کھیت کی ظاہری حالت، زمین کی ڈھلوان، زمین میں پانی گزرنے کی صلاحیت اور ماضی میں ڈالی گئی کھاد کو مدنظر رکھیں۔ زمین سے نمونے ہر سال ایک ہی وقت میں لینے چاہیئے۔
5. نمونے حاصل کر کے ان کو بالٹی یا ٹب میں مکس کر دیں اور پھر آدھا کلوگرام مٹی تجزیے کے لیئے رکھ دیں۔ اگر زیادہ گہرائی سے نمونے لینے ہوں جیسا کہ کماد اور باغات کے نمونوں کا تجزیہ تو پہلے گہرائی سے نمونے علیحدہ علیحدہ پھر ان کو یکجا کر دیا جاتا ہے اور یہ نمونے اس کھیت کے صحیح اور مکمل کیمیائی، طبعی اور غذائی حالت کی نمائندگی کرتے ہیں۔

- کھیت کے وہ حصے جہاں بیج نہ اُگتا ہو مثلاً کلراوالی زمین، وہاں سے نمونے نہیں لینے چاہئیں۔
- ناہموار زمین، پانی کی گزرگاہ، نالیاں، کلریا وہ جگہیں جہاں پر جانوروں کو باندھا دیا جاتا ہے۔ وہاں سے نمونے لینے سے اجتناب کرنا چاہیئے۔
- جہاں کھاد ڈالی گئی ہو وہاں سے نمونے نہ لیں۔ کھڑی فصل میں نمونے قطاروں کے درمیان سے لیئے جاسکتے ہیں۔

"مختلف فصلوں کے لیئے مٹی کے نمونوں کی تعداد اور گہرائی"

فصل	1	2	3	4
گندم، چنا،	00 سے 20 سینٹی میٹر			
کپاس، مکئی اور سبزیات	00 سے 20 سینٹی میٹر	20 سے 40 سینٹی میٹر		
باغات	00 سے 20 سینٹی میٹر	20 سے 40 سینٹی میٹر	40 سے 60 سینٹی میٹر	60 سے 90 سینٹی میٹر

لیبارٹری کی اہمیت اور ٹیسٹ رپورٹ

زمینی مٹی کے نمونے حاصل کرنے کے بعد قریبی تجزیہ گاہ کو فراہم کیئے جاتے ہیں۔ تجزیہ گاہ میں موجود سائنسدان سائینسی بنیادوں پر اُن مٹی کے نمونوں کو محفوظ کرتے ہیں۔

صفحہ بقیہ نمبر 15

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