AVN

Agro Veterinary News

Pakistan's First Independent Agro Veterinary Periodical

Vol. 32 No. 4 / July 2020

Published Monthly | Reg. No. MC-1209 | ISSN 17228-1512 | Rs 100

Court approves moving elephant, Kaavan to Cambodia

AVN Report

ISLAMABAD - IHC Chief Justice Athar Minallah issued the detailed order after disposing of a petition seeking contempt proceedings against officials from the Ministry of Climate Change and the Islamabad Wildlife Management Board (IWMB) after they gave an undertaking that the zoo's lone elephant, Kaavan, would be moved to a Cambodian wildlife sanctuary.

"The practice of capturing animals and keeping them in captivity is a relic of the past. It is a deplorable reflection of the treatment of living beings at the hands of another living species i.e humans. Exotic animals were collected and kept in captivity by the kings, queens and other nobility as a display of their power and might," the court order said, adding: "The subjugation of wild exotic animals by another living species, possessing superior faculties and attributes, had become a symbol of power and superiority."

According to the court order, a wild animal may be kept in custody to protect human life. Climate change, foreign affairs ministries directed to ensure that visas for wildlife sanctuary representatives are not delayed; IWMB to submit

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Sindh minister berates federal council to buy locusts from farmers

AVN Report

MITHI - Sindh Agriculture Minister Mohammad Ismail Rahu recently took strong notice of the establishment of 12 centres in the desert region for purchasing

alive or dead locusts at Rs15 per kg. He said that it was nothing but a cruel joke with the farmers of Tharparkar and other districts of Sindh.

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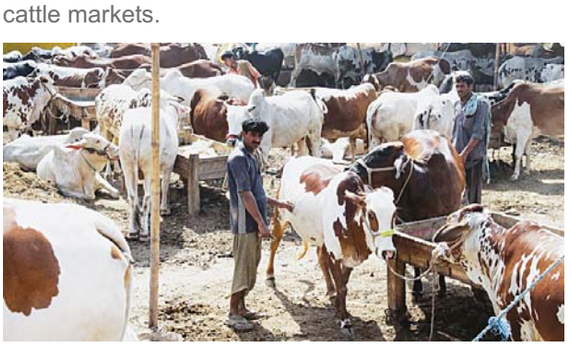
'SOPs prepared for cattle markets in Islamabad'

AVN Report

ISLAMABAD - Standard Operating Procedures (SOPs) have been prepared for the cattle markets to be established for Eid ul Azha to check the spread of COVID-19 and Congo virus in the capital.

Officials said under the SOPs, eateries and food services would not be allowed on the premises of the cattle markets.



There will also be a ban on sanitisation tunnels to disinfect visitors in the markets. Besides, children and senior citizens will not be allowed entry in the markets. Cattle trading and transportation is a permanent feature

Continued on Page 15

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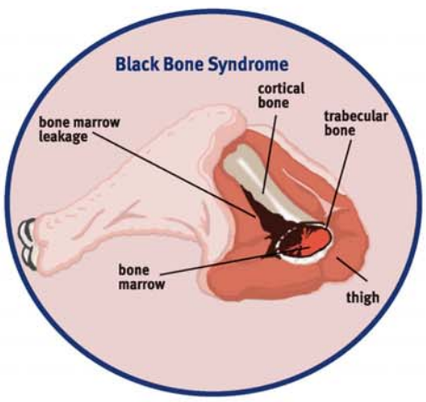

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PM Imran orders action against wheat hoarders

AVN Report

ISLAMABAD - Prime Minister Imran Khan recently asked all the provinces to launch a massive crackdown against hoarding and adulteration of wheat and wheat flour to ensure availability in the market at an affordable price.

"Immediate crackdown should be conducted against wheat hoarders across the country," the prime minister said while presiding over a high-level meeting held at PM Office to review availability and prices of wheat/flour.

He directed the relevant authorities that all shopkeepers must be bound to display price of 20kg bag of wheat flour (Atta) outside their shops.

Besides, he highlighted the need for improving coordination among the provinces to bring uniformity in prices of wheat and wheat flour across the country.

His finance adviser Dr Hafeez Shaikh, commerce adviser Abdul Razak Dawood, special assistant on political communication Shahbaz Gill and federal ministers Syed Fakhr Imam and Hammad Azhar also attended the meeting.

According to the PMO, the meeting also reviewed prices of sugar and its availability in the market.

At the meeting, the chief secretary of Khyber Pakhtunkhwa gave a briefing to the prime minister on wheat and measures to curb smuggling of wheat and flour to Afghanistan.

In his detailed briefing, the chief secretary of Punjab apprised the participants of the meeting that 20-kg bag of wheat flour was available in the province at the price of Rs860.

"In order to ensure availability of wheat, the provincial government was releasing 18,000 tonnes of wheat every day, while 20 per cent wheat flour of Punjab was being sent to Khyber Pakhtunkhwa to cater to the needs of the people there," he explained.

The official also apprised the meeting on sugar and its market prices.

Mr Khan issued special directives for the governments of KP and Balochistan to ensure measures to check smuggling of wheat and flour.

He then directed the chief secretary of Sindh to complete the process of release of wheat keeping in view last year`s situation.

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PVMA demands safe recovery of 'missing' vet

AVN Report

HYDERABAD - Office-bearers and members of the Pakistan Veterinary Medical Association, Sindh zone, held a demonstration outside the local press club recently for the safe recovery of their missing professional colleague, Dr Ayatullah Jarwar.

Speaking to reporters, the association's president, Dr Zahid Chachar and others said Dr Ayatullah Jarwar was a grade-17 officer in the fisheries and livestock department currently posted at Tando Bago. They said the doctor had been unaccounted for since Jun 16 and police were not cooperating with his family members in locating or recovering him.

Quoting Dr Jarwar's family, Dr Zahid Chachar said that some strangers knocked at the door of his house at around 1am on June 16 and asked him to accompany them to an undisclosed place. He said the doctor showed reluctance and made a call to his cousin, Nasrullah Jarwar, an office-bearer of the Tando Bago press club. "However, the strangers had forcibly taken away the doctor before Nasrullah could arrive to help him out," he added.

The association believed that the strangers were personnel of some security agency in civvies and that Dr Jarwar had fallen victim to 'enforced disappearance.'

Dr Chachar said the missing doctor's relatives had constantly been seeking police's help to know about his whereabouts but in vain.

He said the association leaders recently met the Hyderabad DIG but he showed his helplessness in the matter and advised them to move court. The DIG categorically stated that Dr Jarwar was not picked up by police.

The protesters wondered why Dr Jarwar was taken away as being a grade-17 officer, he had never been involved in any anti-social, terrorist or criminal activities and not did not have links with any proscribed organisations.

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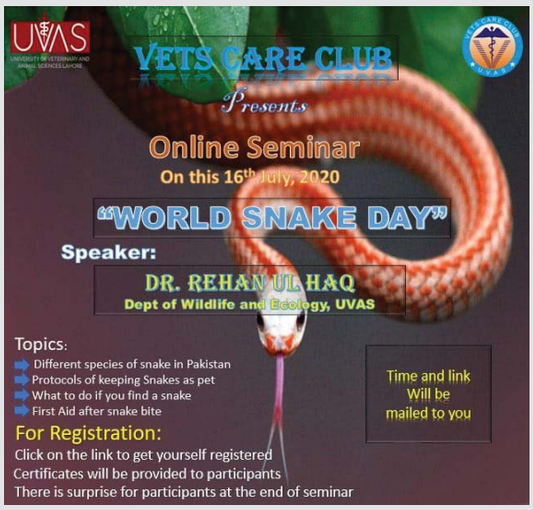
UVAS celebrates World Snake Day

LAHORE - Vets Care Club, University of Veterinary and Animal Sciences celebrate World Snake Day to embark awareness about the different species of snakes all around the world. The event was conducted as a virtual seminar, keeping in view the current situation of the pandemic and providing awareness through social media, promoting social distancing and ensuring safety for everyone.

The keynote speaker for the event was Dr Rehan-ul-Haq, Assistant Professor, Department of Wildlife and Ecology, UVAS Lahore.



Many important topics were discussed during the live session. The speaker highlighted that over 3500 species of snakes are found worldwide out of which 600 species are poisonous, and only 200 of these pose a considerable threat to human life. Still, such a creature is highly misunderstood, and numerous myths are associated with them.

Dr Rehan explained the signs that indicate snake bite and what to do in case one is bitten. He also put light on how snakes are kept as pets and their housing requirements. Venomous species of snakes and ways to prevent a snake bite were also discussed.

Many students from different universities took part in the online seminar. Towards the end of the session, a short quiz was conducted to evaluate the listeners. Mr Sheriyar Bokhari, a Spanish-born herpetologist, along with his pet Python, also joined the live session.

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Animal Health Division

High Quality - Our Strength

Understanding COVID-19 pandemic

By Anam Yousaf
Afro-Asian Institute, Government College University, Faisalabad

Pandemics occur when a new virus arises to infect people and can counterpane between people defendable. Coronavirus is also a pandemic, and due to absence of little to no pre-existing immunity, it spreads worldwide. Coronavirus is large, pleomorphic, enveloped RNA viruses. It contains a single molecule of linear, positive-sense single-stranded RNA and it replicates in the cytoplasm. These viruses are common amongst animals worldwide, but only a handful of them are known to affect humans. Rarely, coronaviruses can evolve and spreads from animals to humans. The virus first emerged in Wuhan on 31st December 2019. Its origin is told to be a seafood market in Wuhan, which has been sealed off. The virus has spread to various other countries.

Causes: These are the viruses that cause disease in other animals and birds and essentially cross over into human beings. The SARS crisis and the Middle East Respiratory Syndrome (MERS) are examples. MERS came from camels and SARS (Severe Acute Respiratory Syndrome) from cats, and it is thought that this virus came from snakes, but we are not sure. This one is known as 2019-nCoV.

Risk factors: There are some risk factors for COVID-19, which includes recent travel of a person from an area congested by people who are affected by COVID-19 and close contact with someone who has COVID-19. There is also a chance of risk when a family member or healthcare worker deals with a person who has COVID-19.

Source of transmission: This virus spreads among people easily. It can be transferred from person to person, especially among those in close contact. The virus spreads by respiratory droplets liberated when someone affected by virus coughs, sneezes or talks. These droplets can be breathed in the mouth or nose of a nearby person. It can also spread if a person makes contact with a surface having a virus on it and then touches his or her mouth, nose or eyes. If you think you have been infected, it is important to seek medical treatment immediately. Wear face masks and be careful who you come into contact with so you do not infect others.

Effects: This virus causes respiratory symptoms like fever, cough, and shortness of breath headache, running nose, sore throat, pneumonia and a general feeling of being unwell. The symptoms appear in 2 days to 14 days after exposure. But in some cases, this can be serious and especially in the elderly or people with pre-existing conditions. Dozens of people have already died, most have been elderly. This virus affected the whole world badly.

Precautions: As a precautionary measure, wear face masks, especially in public and around those who are coughing and sneezing. Wash your hands with often with soap and water for at least 20 seconds. If soap and water are not available, use an alcohol-based hand sanitizer. Avoid touching your eyes, nose and mouth with unwashed hands. Avoid close contact with people who are sick. Also, stay at home when you are sick. Cover your cough and sneeze with a tissue, then throw the tissue in the trash. Clean and disinfect frequently touched objects and surfaces.

Treatment: In Pakistan detection of the virus is more difficult because of very few kits but the government is setting up treatment centres, but we should avoid crowded places. Taking precautions is the most important thing; panic would not solve anything. We have had these outbreaks before, and precaution and good hygiene is the most important thing you can do to protect yourself.

There is no cure and no vaccine of this virus; treatment is to relieve symptoms. Generally, our body will fight the virus on its own, but it is not easy. Blood plasma from recovered COVID-19 patients can be used to treat critically ill cases. The treatment has not been approved successfully but results from initial cases of 'compassionate use' appear good. Unluckily, scaling up this cure is a big issue as it needs blood from donors. There are many trials of antivirals being undertaken, which could reduce the severity. It's hard to predict, but it looks imaginable we could see some antivirals developed within a year. A vaccine may take up to a year to be developed. Precaution and not getting infected is our best bet.

Zagro's Ultraxide™: Laboratory proven to be effective against African Swine Fever (ASF)

Zagro Asia Limited has recently conducted testing of its key disinfectant, Ultraxide™, against African Swine Fever (ASF).

Zagro believes that at this point in time, only a sound bioseacurity measure is feasible against ASF, with no vaccine nor other medical treatment currently available. ASF has been causing a large number of infections in pigs across Europe, China and Southeast Asia with devastating effect to the farms and to the Economy.

Zagro Asia Limited had commissioned for independent evaluation of Ultraxide™ against the ASF virus in Spain, in accordance with the EN 14675 test method, which was modified to enable testing against the ASF virus. The testing was done in a European Union reference laboratory for ASF.

Product	Concentration	Contact Time Min	Soiling	Level of cytotoxicity	Lg TCID 50 after contact time	Log $_{10}$ reduction after contact time
ASFV positive control	-	5 min	3 % FBS	0	9.0	-
ASFV positive control	-	10 min	3 % FBS	0	8.0	-
ASFV positive control	-	5 min	-	0	8.9	-
ASFV positive control	-	10 min	-	0	8.0	-
Zagro Ultraxide™	1:100	5 min	3 % FBS	0	3.5	5.5
Zagro Ultraxide™	1:200	5 min	3 % FBS	0	3.5	5.5
Zagro Ultraxide™	1:300	5 min	3 % FBS	0	3.5	5.5
Zagro Ultraxide™	1:100	10 min	3 % FBS	0	3.5	4.5
Zagro Ultraxide™	1:200	10 min	3 % FBS	0	3.5	4.5
Zagro Ultraxide™	1:300	10 min	3 % FBS	0	3.5	4.5
Zagro Ultraxide™	1:100	5 min	-	0	3.5	5.4
Zagro Ultraxide™	1:200	5 min	-	0	3.5	5.4
Zagro Ultraxide™	1:300	5 min	-	0	3.5	5.4
Zagro Ultraxide™	1:100	10 min	-	0	3.5	4.5
Zagro Ultraxide™	1:200	10 min	-	0	3.5	4.5
Zagro Ultraxide™	1:300	10 min	-	0	3.5	4.5

Based on the findings, Ultraxide™ had achieved complete inactivation of the ASF virus at a 1:300, 1:200, and at 1:100 dilution rate at the exposure time of 5 minutes.

The test method employed included the presence of organic matter and hard water in order to assess Ultraxide™'s performance and suitability for use in various farm set ups across the globe.

Table 1. Titer reduction of ASFV after incubation with Ultraxide™ (1:300, 1:200and 1:100 dilutions) in a suspension test at 10ºC of temperature (contact time: 5 or 10 minutes), in the presence of the interference substance SFB 3% or none.

Based on the test results with reference to European standard EN14675, we can conclude that:

The disinfectant Ultraxide™ possesses virucidal activity for the referenced strain of African Swine Fever virus (Ba71V) at 1:300 (one part of test product plus 300 parts of diluents), 1:200 (one part of test product plus 300 parts of diluents) and 1:100 dilution (one part of test product plus 100 parts of diluents).

The result shows that it reduces >4 log10 of ASFV cytopathic effect, as required by the standard EN14675.

The results provided confirmation of the efficacy of Ultraxide™ in deactivating the African swine fever virus rapidly, not only in a laboratory set up but also in real life farm settings.

Zagro Asia Limited is a leader in agrisolutions with footprints in more than 70 countries.

Extensively used in farming communities worldwide, the company's range of disinfectants, specifically Ultraxide™, are tested to destroy animal viruses.

As part of Zagro's commitment to providing biosecurity solution and support for ASF control with Ultraxide™, *Zagro's team of veterinarians can be contacted via email (support@zagro.com) or via Whatsapp (+65 9653 1942).*

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-Advertorial Content

Novel technologies in animal husbandry

By Prof. Dr Abdullah G Arijo
Chairman
Department of Parasitology, Sindh Agriculture University, Tandojam

There is every reason to believe that the age of animal husbandry dates back to 5000 BC. Archaeological shreds of evidence suggest that the exploitation of the Indus River floodplains and the use of the plough in Early Harappan times were matters of supreme importance.

Quite a few species of wheat, barley and rice have been recorded in Harappan times. Other crops include dates, melon, sesame, and varieties of leguminous plants, such as field peas. From Chanhu-Jo-daro, seeds of mustard have been obtained. Finally, there is evidence that cotton was cultivated and used for textiles. Similarly, several domesticated animal species have been found in excavations at the Harappan cities including humped cattle, Bos indicus, buffalo, B. bubalis sheep, goats, camel and the ass. The bones of domestic fowl reveal that these fowl were domesticated from the indigenous jungle fowl. Finally, the cat and the dog were both domesticated. Presently, but not necessarily, as a domesticated species, is the elephant. The horse is possibly present but extremely rare and only present in the last stages of the Harappan Period.

In any agrion society, livestock plays to keep a position. Milk, meat, eggs, and hide are some of few products to mention. Due to increase in population, the pace of livestock production has been discouraging; hence, there has been an effort to embark upon approaches to introduce animal product technologies aimed at increasing the production potential for human welfare.

Ever since the industrial revolution has been in place, quite a few attractive applications have played a significant role in uplifting the live standards of the common man. The benefits of new technology are plentiful and include increased cost efficiency, improved animal welfare, improved working conditions, better production monitoring (e.g. remote control, access to real-time data) and enhanced provision of essential production data.

Moreover, technology is developing rapidly. In this development, the transfer of computer systems and software to the application has made a significant contribution. Technologic instruments made farmers can work more comfortable and increased animal production efficiency and profitability. Therefore, technologic developments are the main research area for animal productivity and sustainability. Many technologic equipment and tools made animal husbandry easier and comfortable. Especially management decisions and applications are affected highly ratio with this rapid development.

In animal husbandry management decisions that need to be done daily are configured according to the correctness of the decisions to be made. At this point, smart systems give many opportunities for farmers. Milking, feeding, environmental control, reproductive performance constitutes every day jobs most affected by correct management decisions. Human errors in this work and decisions made a significant effect on last product quality and profitability are not able to be risked.

This chapter deal with valuable information on the latest challenges and key innovations affecting the animal husbandry. Also, innovative approaches and applications for animal husbandry are tried to be summarized with detail latest research results.

his co-workers a decade back gave a fundamental realization that the increased world population is demanding more reliable quality livestock products the number of farms is decreasing. Still, the number of animals for per farm and animal production is increasing in addition to this trend livestock production problems also growing. At the same time, research has revealed that the solution to these problems comes from multidisciplinary studies from very different fields such as technology. In large enterprises, it is not possible to obtain the expected performance without using technology and automation systems from animals with very high genetic values. Daily work on livestock farming is simple in and standard application routinely Data monitoring in the modern dairy farm enables the ongoing control of production, animal health, and welfare. The new technology means producers can work easier and improve cattle welfare, production efficiency, and profitability. Technologic developments provide more efficient, profitable and fast solutions for farmers to get on-time process using management and direct manipulation possibilities. Continuous monitoring of disease and its careful management is essential for the well-being of an animal management.

The very application of the use of technologies in livestock management and animal husbandry is associated with realizing the importance of animal husbandry. Animal husbandry deals with the feeding, breeding, housing and health care of livestock for getting maximum benefits. Livestock refers to farm animals (domesticated animals) such as cow, sheep, etc. kept by humans for a useful commercial purpose. Animal production is the technology applied to the keeping of animals for profit. This includes feeding, breeding, housing and marketing. Scientists study the conditions in which animals are raised as well as how animal products are manufactured and marketed to produce good quality of life for animals.

Livestock is domesticated animals raised to produce commodities such as meat, eggs, milk, fur, leather, and wool. Most of the time, the term Livestock is used to refer to animals that are bred for consumption. Other times it can be applied to farmed ruminants, such as cattle and goats. Globally, livestock production is the largest user of agricultural land.

There is so much to look at livestock technology. Meat production is expected to double by 2020 fuelled by population growth. Changes in diet and rising income levels will also contribute to meat consumption. There will be pressure on farmers to feed more people, with fewer resources. Besides, there is so much for livestock production managers to look at new technologies that can be used in a diversified manner as follows.

Novel Agriculture

Precision agriculture for the next generation of farmers, and it includes new technologies like satellite, global positioning systems, sensors and monitors for irrigation, planting and fertilizing equipment, to name a few. Farmers have a variety of technology options that improve their farming operation, from drones to weather monitoring systems and more.

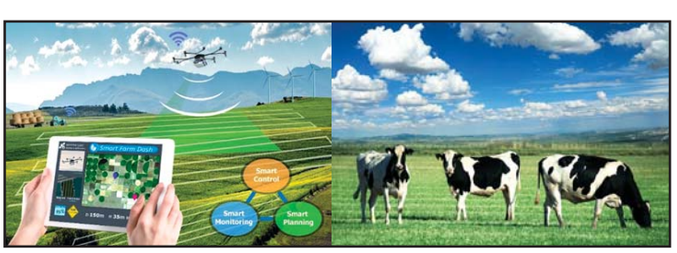
We live in a digital age with vast amounts of data. Trillions of sensors are used in appliances, packages, farm animals & more. The number of big data used in raising livestock will only continue to grow. The world food economy is driven by the shift in diet and food consumption-these patterns towards reflecting on livestock products.

By leveraging big data, the livestock production sector will become more efficient.

The Internet of Things (IoT) is another new technology that is being used to raise livestock. This technology connects the physical world with the digital world and offers many applications in the livestock production sector. With this technology, livestock production managers will have a better understanding of their environment. IoT can empower livestock production managers with information. Internet of things will alert them to how and when to intervene in feeding and to care for animals. These days, mobile sensors are used to track the health of animals and increase productivity. It is hoped that the proper use of this technology may reduce the mortality rate of cows by 80%.

Artificial intelligence and robotics are yet another novel technology to help. Artificial Intelligence is already being used in raising livestock. A 2017 PwC survey of global executives reported 54% of farmers are making significant investments in AI. Automated milking robots, for instance, can control and milk many cows within a short time. While the animal consumes its feed ration through a sensor-controlled mechanical arm, the animal is milked. AI can now track things like age, milk quality or the animal's health condition.

These novel technologies are new for Pakistani livestock managers. However, the quantum of blessings associated with animal product technologies will soon go in top gear and will change the scenario. The private sector is in a fast run to have their lions' portion in markets; however, the public sector must come up with long term planning for better benefits for livestock farmers.



Pre-weaning kids mortality in white beetal goat

By Dr. Zeeshan Waqar
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Pakistan is blessed with 68.4 million heads of goats out of 119.9 million and is known as 'the cow of poor.' Goats produce about 70% of the mutton. Mutton also contributes about 12.7% of total meat production of the country. Pakistan has a total of 36 goat breeds. The milk obtained from them used by farmers as a feed source.

Moreover, their meat consumption is relatively high as compared to sheep but less than poultry and beef. Mutton is consumed not only by wealthy, but farmers utilize it on their special occasions. White beetal goat breed is famous due to its unique features all over Pakistan. Its body score, feed conversion ratio, disease resistance capacity make it different from all other kinds. 90% of its population is grown in Dera Ghazi Khan Division.

Kidding of two (duplet) or tree (triplet) kids are distinctive features of white beetal goat. Farmers have a keen interest in white beetal due to this salient feature. The goat industry is flourishing day by day. The sector gets loss due to the death of young ones until the age of 120 days.

Low survivability, high death records are seen with low weaning percentages in the traditional system of goat management. Reduction in kids' mortality will result in increased output. A survey was conducted to get upper peaks and lower peaks of deaths of kids. According to that survey, maximum deaths occurred in 1998 were about 28.1% of total kids' populations. 12.1% of the lowest mortality rates were noticed in 1999 in white beetal kids.

These are common causes of kid's mortality and their precautionary measures. Precautionary measures will reduce mortality of kids.

Common causes of mortality natural selection

White beetal has enlarged litter size that triggers the selection of the fittest. All kids of the same goat cannot survive due to natural selection. Nutrients supplementation by the placenta is also challenging for a dam to supply equal nutrients two or three kids at the same time. The Best supplemented kid has the best birth weight, weaning weight, and the weight gain at puberty, while those who could not get enough supplementation could not meet the criteria for selection.

- **Precaution:** Breeding should perform in the best pattern for the improvement of genetic makeup. Avoid backcrosses and most closely related relatives to get excellent heterosis vigour. Size and age of the dam also play an essential role in the breeding plan.

1. Environmental Challenge: After kidding, the first challenge for a kid is to survive in a new environment. The farm should be humid to keep the dam and kids in a stress-free environment in hot summer. For best survival, kids should suckle plenty of colostrum to overcome environmental pathogens and vitamins minerals for growth and metabolism. Dams with two or three kids also failed to supplement her kids with an equal amount of nutrients. That provides a chance to pathogen to invade young ones by causing diseases that lead to death.

- **Precaution:** To overcome this issue, every kid should give equal chance to suckle colostrum or milk in the same quantity. The procedure will boost up young ones immunity in similar proportion. The farm should be kept pathogen-free and provide optimum environmental conditions for granting a stress-free environment.

2. Enterotoxaemia: Enterotoxaemia caused by a bacterium named Clostridium perfringens type D is a significant source of mortality in kids of white beetal goat. Environmental stress and low gastrointestinal motility are predisposing factors for this disease.

- **Precaution:** Enterotoxaemia is a deadly disease for kids. Vaccination of kids in time minimizes infection risk.

3. Colibacillosis: Colibacillosis is the infection of Escherichia Coli. E.coli damages the epithelium of intestines and cause diarrhoea. The disease results in electrolyte imbalance and dehydration. Stressed and less immunity holder newborns are mainly affected by this infection. An unclean environment of the farm is a significant source of Escherichia Coli.

- **Precaution:** Farm should be kept antiseptic in kidding season. The infection could be avoided by hygienic conditions and by providing an adequate amount of colostrum. Antibiotics should prescribe in an infectious state.

4. External Parasites: Lice, fleas, and ticks have a significant impact on the livestock industry. Beetal goat is also well known due to its disease resistance. However, kids are susceptible to external parasites. These parasites suck nutrients from the blood of the kids, weakening the body condition and immune system to them. Parasitic load causes stress in animals, restlessness, and poor feeding, which ultimately leads to death.

- **Precaution:** Farm, pens, and barns should be kept insect-free by spraying acaricides such as pyrethrin, permethrin, and cypermethrin. Moreover, anti-parasitic drugs should be administered to parasitically infected animals.

5. Blood Parasites: External parasites have proved the carrier for other diseases. They are primary carriers of blood parasites, i.e., theleria, babesia, and anaplasma cause diseases of theileriosis, babesiosis and anaplasmosis, respectively. Anaplasmosis causes weakness of kids and doe without evident signs of infection. However, theileriosis and babesiosis have visible signs of temperature and hematuria (blood in urine), respectively.

- **Precaution:** Blood parasites can be controlled by controlling their vector sources, i.e., flies, ticks, and fleas. Upon disease occurrence drug of choice should be used once and not more than two doses.

6. Mineral Deficiency: Mineral deficiency of white beetal goat leads to disease conditions such as pica. The kid starts eating non-feeding objects such as clothes, paper, or plastic. Selenium deficiency is also a significant issue of white beetal goats. Muscular atrophy of hind legs occurs in kids who tend to paralysis of kids. Symptoms include weak growth, unable to suckle, and sudden death by a heart attack may occur.

- **Precaution:** Proper feeding plan is the best source to keep safe from these minerals problems. Minerals should be supplemented to the kids.

Factors responsible for kids mortality in goats

1. Effect of Sex: Average kid's mortality between different breeds reported 4.16% and 2.86% in male and female suckles, respectively. Overall, males have a death rate of 59.3%, while females have 40.7% of total mortality. Mortalities of male kids are higher (56.52%) as compared to female kids (43.48%).

2. Age of Kids: In white beetal goats, the frequency of the kid's mortality and age average is as follows. Results concluded that the death rate increased with an increase in the number of days of age until 90-120 days. Health status at a neonatal stage plays a significant role in the survival of the kids. The highest mortalities at fourth month are due to health hazards to neonates. Deaths are also increased in 3-4 month kids due to supplementation deficiency, concentrate feeding, parasitic infestation, and environmental stress.

Age of the kids (Months)	Mortality (Percentage)
0-1	1
1-2	1.5
2-3	2.7
3-4	0.4

3. Birth Weight: Kid's mortality averages according to their birth weights are as follows. Kids mortality tended to increase with the increase in birth weight are unable to withstand inclement weather as well as the difficulties they face in suckling to milk from their dams, resulting in low nutrient intake and consequent high mortality. Different goat breed analysis shows that the mortality

Birth Weight (kg)	Mortality (Percentage)
1	0
1.01-1.50	1.5
1.51-3	3.8
> 3	1.8

4. Types of birth: In the white Beetal goats, the mortality rate among single, twins, and triplet born kids averaged 4.5, 2.3, and 0.2 per cent of total mortality, respectively. However, the breed-wise analysis showed there was an increased rate of death in twins and triplets compared with the dying in single. With the exception in Dera Din Panah, that showed fewer kid losses in twins and triplets than in single births. The breed-wise analysis showed a higher mortality rate with an increase in multiple types of deliveries. Birth type is also a significant factor affecting kids' mortality.

5. Season of birth: Mortality percentage in different seasons reported. Overall highest mortality occurs in dry, hot summer. It is due to the stress of environmental temperature. Feed scarcity in May and June cause milk reduction of dams. Milk yield reduction affects growth and immunity of the new-borns. Reduction in growth rate and lesser immunity results in metabolic, autoimmune, or pathogenic diseases. These diseases ended up with the death of the kids.

Season	Mortality (percentage)
Winter	12.7
Spring	26.2
Summer(Dry Season)	37.5
Summer (Humid Season)	18.2
Spring	5.5

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Water Depletion

By Bilal Haider
University of Veterinary and Animal Sciences Lahore (Sub Campus Narowal)

Water depletion is defined as 'Dire curtailment of the total amount of groundwater'. Water is present to a great extent on the earth, and our bodies are composed of water. It is a very crucial element of the biosphere, which is necessary for all forms of life to remain alive. It is available on earth in the way of oceans, seas, lakes, rivers and canals. It is an inexhaustible source, and its accessibility depends upon the climate, geographical and physical conditions, reasonable technological solutions and the efficiency with which it is preserved and used. We require it for growing crops, powering equipment and to make our lives comfortable. If we talk about its distribution on earth, 97% is present in oceans, 2% in the form of ice and 0.6-1% as freshwater either on surface or groundwater. Freshwater is used in domestic, agriculture and industrial works.

Causes of Water Depletion

Following are the leading causes of water depletion. Groundwater depletion is the result of excessive pumping of water from the ground due to overpopulation. More people use more water. We pump the water rapidly than it can revive itself, resulting in a dangerous shortfall in the groundwater supply. The more we derive water from the ground whirlwind, the more arduous it is for the groundwater to allocate us with the bulk that we require.

Many factories and industries are dumping different kinds of pollutants in water. As water becomes poisonous and toxic to health, so its availability is decreased. Owing to the addition of different types of minerals in the water, there is the siltation of water bodies. This water is not potable

About 70% of freshwater is used to fulfil agricultural requirements. By using traditional methods, we are wasting more water. Without groundwater, it becomes strenuous to supply drinking water for crops, animals in case of drought. Consequently, water demand is more than its supply.

A lot of freshwaters is wasted in the laundry, household and industrial purposes. Owing to the reckless attitude, we are losing many litres of fresh water daily such as showering, clothing, washing of utensils, and even brushing the teeth. While in the case of industry, we lavish freshwater in laundry and cooling the electricity generating equipment.

Management of water is a very crucial factor in saving it. If meticulous steps are not taken, lots of water will be lost in the coming years. Also, when water flows in rivers and canals, then some amount of it is lost in seepage, and it causes severe disturbance in the underground water level. Ultimately, an unnecessary increase in groundwater level leads to disruption in the ecosystem.

The groundwater resources are decreasing day by day due to deforestation. Deforestation causes a drastic change in a climate like increase in the greenhouse effect and global warming, which causes an increase in temperature. Owing to this, icebergs are melted, and a large number of freshwater moves to the ocean and seas. Moreover, evaporation due to high temperature leads to the destruction of water resources.

Effects of Water Depletion

Now we talk about the impact of water depletion. Groundwater step-down compels us to derive water from deeper within the earth. The more we draw out groundwater beneath the earth's surface, the more we have to go to incur more. As we have to reap water from deeper within the planet, so less water is attainable. Therefore, we will have to develop unconventional methods to reach more in-depth in the ground.

Pollutants of industries which are added in water resources cause a drastic effect on the ecosystem. These pollutants involve heavy metals such as aluminium, mercury, cobalt and silver, which are carcinogenic and results in heavy metal poisoning in humans, suffocation in fishes, and destroy aqueous environment also.

Saltwater taint can take place. Mainly we attain groundwater by pumping in area of getting from lakes and rivers, but that does not signify that it is not wired up large water bodies. Mostly deep underground immingled with salt water that is not potable. Commixing of freshwater with saltwater is called saltwater contamination. This kind of taint leads to more demand for fresh water as it will cost high.

Now a day's lack of water is a significant problem. Nearly 1.1 billion people do not get clean water. On the other hand presence of tainted water is also a considerable problem-contaminated water results in diseases such as cholera and diarrhoea. Infected water is a killer of many people. Deficiency of clean water causes conditions such as stress, high blood pressure, and increase in body weight, allergy,

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CRISPR/Cas9: A promising crop breeding tool

By Sairash Yousaf, Ayesha Asghar, Zulqarnain Baqar

Man has always been a Biologist. Since the time of its advent on the Earth, he has been looking for opportunities to create improvements in existing resources of nature for its survival. Plant breeding is as old as the man itself; improving plant varieties and traits. Since 1900, when Medal clearly defined the basis of plant breeding, it became possible to manipulate the plant chromosomes combinations for the creation of plants with improving productivity, quality, disease resistance, biotic and abiotic stress tolerance. Traditionally, plant breeding was carried out by selection, hybridization, polyploidy and mutation. In the first method, the plant populations with desired characters were selected and used for further breeding and cultivation. Hybridization involves the fusion of different plant lines having desirable characteristics. Transfer of other undesired traits and sexual incompatibility restricts the procedure. Polyploidy was also carried out to increase the chromosome sets in plants, but it produced the plants with lower fertility. Mutation breeding was introduced in the 1920s by researchers to create mutations or variations in plants by treating them with physical or chemical mutagens. Since these classical breeding methods has dramatically increased the crop yield and created an agricultural revolution in developing countries, however, these methods are labour and time-intensive.

Genetic Engineering provides the chances with the directed manipulation of genes from the time of its advent in Paul Berg's laboratories in 1972. It has broadened the horizons of breeding techniques during the past few years, and exciting new genome editing technologies have been developed. Zinc Finger nuclease was found in 1996 as one of the novel genomes editing technology, consisting of a protein domain (Zinc Finger) along with a Fok1 endonuclease. It is used to cleave the DNA in vitro in strictly defined regions with the help of site-specific nucleases. There are also other nucleases with pore flexible nature named Transfer Activator-like Effector Nuclease (TALEN). Despite the vast potential, both these techniques are restricted due to their high cost and difficulty to design active

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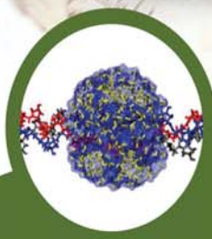
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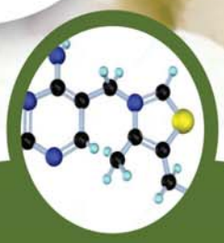
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Colostrum feeding in newborn calf

By M.Shahbaz Zafar[1], Inam Ullah Yasir [2]
[1](M.Phil. Animal Nutrition) CVAS Jhang.
[2](DVM CVAS Jhang.)

Colostrum feeding

- Colostrum is the first milk secreted after parturition.
- It contains large amount of gamma globulins which are nothing but anti-bodies produced by the cow against antigens encounter during her life including those against man disease producing organisms.
- Absorption of these antibodies provides the calf with an umbrella of passive immunity.

Composition of Colostrum and Milk

❖ Colostrum's is highly fortified source of nutrient having 7 times the protein and twice the total solids of normal milk, thus it gives an early boost in portion and solid intake.

❖ It contains higher amount of minerals and vitamin A which are essential to combat disease. Ingestion of these through colostrum's substantially increase the calf's survivability.

❖ Colostrum's give a laxative effect which is helpful in expulsion of muconium (first faeces).

❖ The cows should be vaccinated against contagious and infectious diseases which help to increase the quantity and quality of gamma globulins in colostrum.

❖ Similarly colostrum of mature cow possess large quantities of gamma globulins because they have greater chance of exposure to many infection.

❖ The gamma globulins must be absorbed as such across the intestinal wall into blood stream without being broken down into the constituent peptides or amino acids.

❖ This permeability is rapidly lost after the first few hours of life. Many studies have shown that these globulins pass across the gut wall at the most rapid rates during the first 1-2 hours of life.

❖ Taking this into view. It will be highly useful to feed colostrum in the first 15-30 minutes followed by a second dose in approximately 10-12 hours.

❖ The absorptive cells lining the small intestine are immature at birth. In this stage they indiscriminately take up large molecules like immunoglobins.

❖ As the calf grows older hour by hour, there is a transition of epithelia cells of small intestine from immature type to mature type which cannot allow large protein molecules.

❖ As the more and more cells mature the capacity of the calf to absorb immunoglobins diminishes proportionately until 'closure' when no more absorption can take place.

❖ This phenomenon is called 'gut closure'. Concentration of antibodies at 'closure' is directly related to the disease resistance of the calf.

❖ If at closure the calf had absorbed only a small amount of immunoglobins from colostrum, the diminishing concentration soon puts the calf into a critical immune position.

❖ This increases morbidity and often leads to mortality of the calves.

❖ Quantity of colostrum to be fed is 1/10th of body weight.

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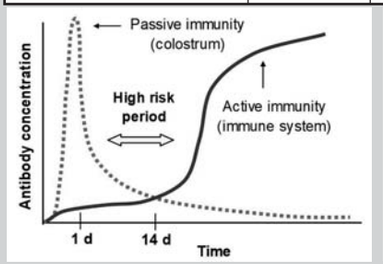
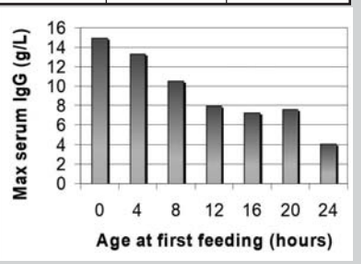
Composition of Colostrum

Constituents	Colostrum of cow milk	Colostrum of buffalo milk	Milk
Total solids	28.30	31.0	12.86
Ash	1.58	0.9	0.72
Fat	0.15-1.2	4.0	4.0
Lactose	2.5	2.2	4.8
Casein	4.76	7.7	2.8
Albumin	1.5	3.6	0.54
Globulin	15.06	12.5	-
Total protein	21.32	23.8	3.34

TYPICAL COMPOSITION OF COLOSTRUM AND TRANSITIONAL MILK

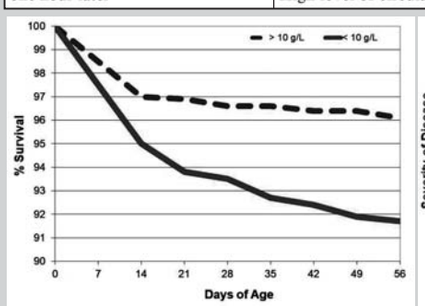
	Milking number	Milking number	Milking number	Milking number
Item	1	2	3	4
Solids (%)	23.9	17.9	14.1	12.9
Protein (%)	14.0	8.4	5.1	3.1
IgG (mg/ml)	32.0	25.0	15.0	0.6
Fat (%)	6.7	5.4	3.9	4.0
Lactose (%)	2.7	3.9	4.4	5.0
Minerals (%)	1.1	1.0	0.8	0.7
Vitamin A (ug/dl)	295.0	190.0	113.0	34.0

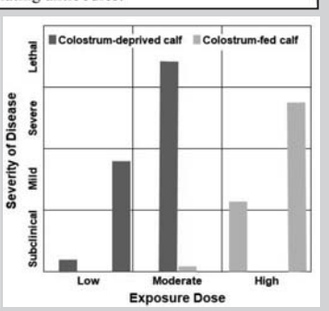




Effects of early colostrum feeding on intestinal E. coli attachment in colostrum-deprived calves

Feeding	Results
E. coli fed alone	Bacterial attachment to intestine and level of E. coli in circulation high.
Colostrum and E. coli fed together	No bacterial attachment to intestine.
Colostrum fed alone, E. coli fed one hour later	No bacteria attached to intestine and no E. coli in circulation. High level of circulating antibodies.





UVAS achieves breakthrough advancement in Sahiwal cow breeding

AVN Report

KASUR - The University of Veterinary and Animal Sciences (UVAS) Lahore recently achieved a major breakthrough in reproductive biotechnology as its embryology laboratory at Ravi Campus, Pattoki, has achieved first pregnancy following the use of in-vitro fertilisation (IVF) technique in Sahiwal cows.

This was claimed by UVAS Vice Chancellor (VC) Prof Dr Nasim Ahmed during his visit to Ravi Campus of the university at Pattoki.

Sahiwal cow's origin is traced in Ganji Bar of Punjab, the area between the rivers of Sutlej and Ravi. Known for its milk yield and beauty, the breed is found in areas of Sahiwal, Okara, Faisalabad, Toba Tek Singh and Multan.

Talking to Press, the UVAS VC said the IVF was an advanced reproductive biotechnology for hastening breed improvement in livestock animals. He added that the procedure involved ultrasound-guided aspiration of eggs from elite cows followed by its

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Court approves moving ...

Continued from front page

weekly report on formalities relating to Kaavan's move.

Justice Minallah expressed satisfaction after being informed by the IWMB that the "marsh crocodile, which had been kept in a small cage under extreme inhumane conditions at the Marghazar Zoo, Islamabad was released for its onward journey to its sanctuary situated near Sukkur in the province of Sindh."

According to the minutes of the IWMB meeting: "It is decided that Kaavan (Asian elephant) should be retired to Cambodia wildlife sanctuary, after health assessment by visiting veterinarian and staff from the sanctuary...The ministry may write to the Ministry of Foreign Affairs to expedite the visa process of visiting vet and consultants...It has been agreed that the expenses for the visit of vets and staff from the sanctuary, medical tests, crate building and training and relocation transport will be borne by NGO-Free the Wild."

The court also praised the government's efforts for the well-being of the zoo animals.

The order said: "Advisor to the Prime Minister on Climate Change Malik Amin Aslam stressed that the prime minister has issued strong directions to the Ministry of Climate Change to provide all required support for implementation of the court's decisions. Also, the ministry has been tasked to provide support for future rethinking and revamping of the Islamabad Zoo into a more animal friendly enclave which provides environment for adequate protection of animals rather than animal exhibit."

The order said that the court recorded appreciation for the empathy, compassion and care displayed by the federal government and Prime Minister Imran Khan in particular.

The court also noted: "Jurisprudence of this court has also caught the attention of jurists outside Pakistan. Professor Laurence H. Tribe, renowned scholar and faculty of Harvard Law School, has referred to the judgment in his amicus brief submitted before the New York Supreme Court, Appellate Division, United States of America."

The court said that the federal government and the IWMB may consider changing their focus from keeping animal species in captivity to developing, preserving, protecting and maintaining their natural habitats. There is also a need to understand that the place for animal species are their respective natural habitats and not the artificially created enclaves in zoos.

The ministries of climate change and foreign affairs have been directed to ensure that there is no delay in the issuance of visas to representatives and officials from the the Cambodian sanctuary.

The IWMB has also been told to submit a weekly report with the court registrar regarding the completion of formalities for Kaavan's journey to his new home and the relocation of all the other zoo inmates.

The court order concluded with the observation of operatic tenor Robert Breault: "The only creature on earth whose natural habitat is a zoo is the zookeeper."

Sindh minister berates ...

Continued from front page

In a press statement issued here, he described the establishment of locust procurement centres as 'another insane and imprudent decision' by officials of the Agriculture Research Council (ARC) taken on the directions of federal government.

He made it clear that the Sindh government had nothing to do with such unwise decisions to further 'humiliate' the farmers instead of taking effective steps to exterminate the scourge of the locusts from Tharparkar and other districts of Sindh.

"The decision to catch and sell the locusts can only behove the people like Imran Khan and his cronies, but we in the Sindh government are trying our best to eliminate the dangerous insects through mechanised methods despite having limited resources," he added.

He said the provincial government had been requesting the federal government, including the plant protection department, for the past several months to send an aircraft in the affected areas for the effective anti-locusts spray, but every time the Imran Khan-led Pakistan Tehreek-i-Insaf (PTI) government paid no attention, which led to massive damage to crops from June 2019.

"Still the locusts were posing even greater danger to the crops and other vegetation across the province," he added.

"But given the situation, it is nothing, but a cruel joke with farmers and people of Sindh to ask them to catch the insects and sell them at the designated centres in desert areas," he added and asked the ARC officials not to meddle in the affairs of the Sindh government by forcing its officials to get themselves engaged in such 'childish activities.'

Mr Rahu observed that it was evident from the recent move by the federal government to set up 12 centres, 10 in Tharparkar and two in the desert parts of Umerkot district that the PTI government was unable to make any sensible decision to cope with the scourge of the locusts and COVID-19 pandemic.

Mr Rahu said that marshalling all the available resources, he had directed the officials in Thar to speed up the spray to kill the insects at their initial stages in Nagarparkar, Dahli, Chhachbro and other areas.

SOPs prepared for cattle ...

Continued from front page

during Eid ul Azha which generates a significant economic boost for the country.

On the other hand, huge movement of livestock and mass gatherings in cattle markets always pose threats of communicable diseases like cholera, typhoid fever, Congo Crimean Haemorrhagic Fever (CCHF) and respiratory infections.

The capital administration issued the SOPs which the managements of the cattle markets are required to implement.

As per the SOPs, the markets should be established at designated points and two to five kilometres away from the city limits.

It is recommended to increase the number of cattle markets to manage rush and gathering of traders and buyers.

The cattle markets should have defined areas for main business points for establishment of stockyards for cattle.

The markets should also have well-ventilated management offices, medical and veterinary camps, spacious separate parking lots for customers and cattle transport vehicles.

Besides, separate entry and exit points for one-way controlled movement are required.

A parking area will be marked with an appropriate distance for each vehicle and no extra vehicle will be allowed to enter unless the space is available and only two people per vehicle will be allowed.

Elderly people and children may not be allowed to enter the markets.

Besides, people with fever or respiratory symptoms are advised not to visit the cattle markets.

Cattle would be pegged at distance inside stockyards so that close gathering of customers can be avoided during inspection of animals.

Cattle markets should provide hand-hygiene facilities (soap or alcohol-based hand sanitiser) at the entry point and multiple places within the market.

There should be functional toilets and a hand washing facility with essentially required supplies, including soap, tissues and paper towels.

No one will be allowed to enter the market without wearing a face covering either for sale/purchase of animals or staff involved in market management.

Moreover, no handshake or hugging while market staff and sellers should not share personal items like face masks, pen, food utensils, pots, etc.

Gathering of more than five people at one place within the market premises should not be allowed.

Proper waste collection and disposal arrangements should also be ensured there.

Thermal scanning of staff and visitors at entry points by trained personnel to be ensured, medical camps with adequate staffing, equipment and PPE will be established at the markets by concerned district health authority.

Any person detected with high temperature and suffering from cough will be referred to medical camps for further assessment.

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Antimicrobial resistance and veterinary practice in Pakistan

By Muhammad Awais Soomro
Shaheed Benazir Bhutto University of Veterinary and Animal Sciences, Sakrand.

Amidst versatile and diverse challenges, antimicrobial resistance (AMR) stands one of the crucial and gruesome complexities that the world faces today. Ever since the unveiling of bacteria by Leeuwenhoek had taken place, we can visualise micro-universe in an expanding paradigm. Even though as rapidly antibiotics resistance enhancing, we face terrible and terrifying tomorrow. Bacteria with their exponential biodiversity have amazed researchers. As the pioneer of broad-spectrum antibiotic, Alexander Flemming, once warned and foretold about AMR, "It is not difficult to make microbes resistant to Penicillin in the laboratory by exposing them to concentrations not sufficient to kill them, and the same thing has occasionally happened in the body. The time may come when Penicillin can be bought by anyone in the shops. Then there is the danger that the ignorant man may easily under dose himself and by exposing his microbes to non-lethal quantities of the drug make them resistant."

Since the 1950s up to 90s we've witnessed elevation in drug development such as the first antibiotic that came into being was arsphenamine in 1909, then Penicillin, tetracycline, cephalosporins, trimethoprim and many more. Soon after their routine utilisation hindrances in the sense of resistance came to see. As with the invention of tetracycline after nine years the first resistivity appeared as tetracycline-R shigella in 1959. It is now easily imaginable that an antibiotic drug that meant to provide therapeutic effects is malleable and can easily be resisted. How could a tinnier bacterium resist and inhibit any lethal dose of the drug? Is it more competitive than a drug? To answer such questions, we must go through the mechanisms of both the drug and bacterium.

The drug that kills (bactericidal) or causes bacteria to stop functioning (bacteriostatic) is said to be antibiotic. And these drugs vary in functionality such as some of them inhibit cell wall from being formed (Penicillin); thus, bacteria become an unprotected treasure and is killed. Some drugs invade protein forming units like tetracycline, aminoglycosides; some are designed to block DNA making like fluoroquinolones. Not all bacteria can resist, but a few of them become resistant. Let's say, bacteria are exponentially divisible organisms owing to their unicellular composition. Thus, genetic material is always in working condition for them to inherit mutation (errors in Nucleotide bases) is quite simpler. If genes that channelise these drug molecules are mutated, they become competitive and resistant. Another way for the drug to enter is porins in their cell membranes, but some bacteria have intrinsic resistivity to push out drug and are resistant. Some of them produce enzymes to break the molecules of the drug as in case of Penicillin; the Beta-Lactam ring is deteriorated by bacteria producing lactamase enzyme. Some other bacteria have efflux pump generation process inner to their membrane, which pumps and constricts; hence, the drug is out. These are pathways which bacteria have either genetically or have acquisition from habitat.

Another query hammers mind that how come such a small quantity of bacteria can be world's growing trouble?

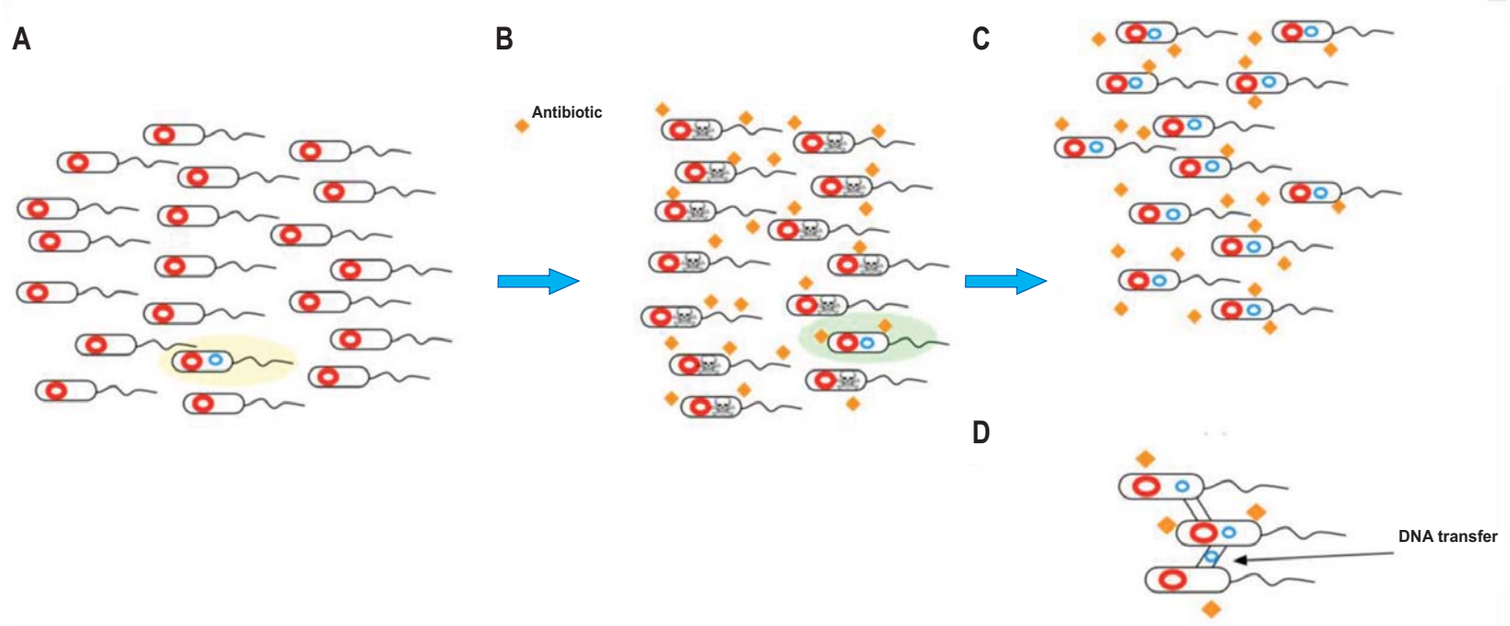
"Statistically, drug-resistant infections are now killing a lot of people, at least 7,000 people worldwide. And that's going to go up to 10 million a year by 2050 if we don't take action. Moreover, as it goes up, more than 28 million people will be driven into abject poverty. So this is a serious issue," said Prof. Sally of England.

As we discussed above, they reproduce rapidly. A single bacterium possesses in its cell a chromosomal area and a circular extra chromosomal area which is known as a plasmid. Now this plasmid has genes to resist antibiotics these genes can be transferred to another bacteria of same species or another species by a process known as conjugation. Furthermore, there are jumping genes or transposons on bacterial chromosomes, and these happen to be mobile integrated genes their peculiar characteristic resembles AMR. Either horizontally or vertically these genes are encoded, transmitted and descended in their progenies. Another way for resistance to occur is the unlawful practice of over the counter drugs which are being provided and wrongly self-medicated to avoid meet doctors and health careers. This act has caused a huge population of bacteria to become resistant.

Catering these subjective ways which are being put in practice in medical sciences and veterinary sciences, since these are known to us. Despite jolly big efforts to develop drugs like antimicrobials some flaws yet remain to be taken under consideration. In the comparison of humans, domestic animals, pets and wild animals for frolicsome are routinely administered antibiotics and some other drugs.

World Health Organization (WHO) in 2015 recognised antimicrobial resistance a global concern that needed to be paid heed. At its 68th session of the World Health Assembly, all of the countries, including Pakistan, endorsed it in the National Action Plan (NAP) as One Health Approach. Scientific methods needed to be waved throughout the world and amplified by WHO, the assistance, to compete and cope with this critical dilemma because once WHO warned us all, "A time may come once again that people might die due to mild injuries and wounds because the advanced antibiotics will have evolved resistance and become dysfunctional". Under the strategic NAP amendments notwithstanding actions, it seems these are just blurred statements which are not further processed. Our government and professionals have failed to monitor AMR and provide advertency to layman regarding it.

According to a recent survey, Pakistan produces 52 billion litres milk yearly, which makes us 4th highly frequent milk producing country in the world but milk after being processed and packaged yet have impurities mainly drug residuals. Brucellosis a very infectious disease, caused by Brucella abortus, is spreading through the milk and resistant to antibiotics. Quack doctors with no knowledge of pharmacodynamics and kinetics for mild fever and pain suggest and inject antibiotics for rapid rectification and sadly, unknown to what trouble they trigger. About 60-70% of veterinary practitioners are providing unlawful doses in wrong situations which are not killing bacteria or microbes but strengthening



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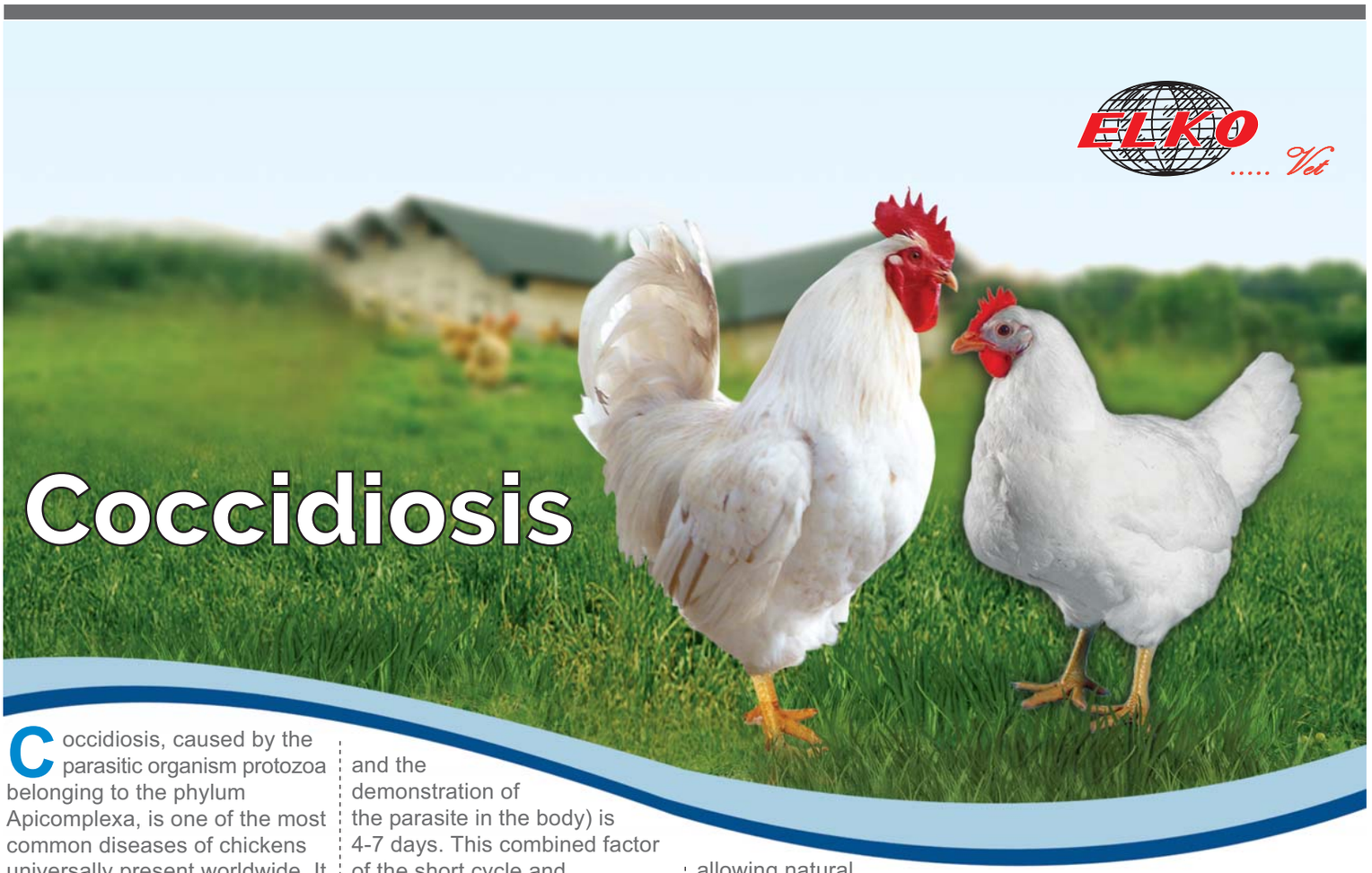

Coccidiosis

Coccidiosis, caused by the parasitic organism protozoa belonging to the phylum Apicomplexa, is one of the most common diseases of chickens universally present worldwide. It mainly damages the host's intestinal system. Due to loss of production, morbidity and death, the economic impact is devastating worldwide to the poultry industry, especially countries in the third world - like Pakistan.

Coccidial is caused by mainly by the species: *genus Eimeria: E. acervulina, E. brunetti, E, maxima, E. mitis, E. necatrix, E. praecox and E. tenella*. All belong to Phylum Apicomplexa. Most of them are deep tissue invaders and cause severe necrosis, haemorrhage of the intestinal mucosa, and bloody diarrhoea that may result in death. The life-cycles of these species are short and straight: The infective oocyst is ingested by the host chickens ingesting the parasite eggs, *sporulated oocysts* from contaminated feed, passing into the intestinal tract, where the parasites invade the cells of the abdominal wall.

Cycles of replications start to occur in the small intestine, and sporozoites infect the cell lining of the gut, which leads to the formation of new oocysts that are shed in the faces. Oocysts sporulate due to favourable environmental conditions temperature and humidity and become infective. The short cycle is of just 4 to 6 days. The optimal conditions are 25°-35°C with adequate moisture and oxygen requiring 1-2 days with a *prepatent* period (the period between infection with a parasite and the demonstration of the parasite in the body) is 4-7 days. This combined factor of the short cycle and environment has the potential for massive replication during the intracellular phase. This makes this group of parasites a serious problem under exhaustive farming conditions, found in most country's small, medium and even large size farms.

This replication of the parasites leads to damage in the bird's intestinal tissues. The parasites reproduce in the small intestine, and merozoites keep infecting more intestinal cells. After several cycles, oocysts are produced which are passed in the faeces of the infected host bird and the cycle is completed affecting outside of the host's body by contaminating feed, dust, water, litter, and soil.

Although initially, the birds may show no clinical signs, such as loss of appetite or weight loss, diarrhoea, as resistance develops but immunity, is strictly species-specific, and the birds are exposed to one species of *Eimeria* will remain susceptible to infection from all other species. The damage caused by the different species varies, but all have a significant impact on production.

The *genus Eimeria* are present globally. They are ever-present under intensive farming methods. This omnipresent nature of *Eimeria* precludes eradication as a practical option for control. Because species-specific immunity develops rapidly, the management of coccidiosis aims to achieve a balance between allowing natural immunity to build up and preventing high oocyst exposure to naïve birds. Hygiene and anti-coccidial drugs both play significant roles.

The primary means of the spread between farms and between sheds on a farm is mechanical transmission because all species of *Eimeria* have short and direct life-cycles. Oocysts are incredibly resistant - both to climatic extremes and disinfectants, and can survive up to several weeks in soil. Good hygiene practices do assist in minimizing the transmission of *oocysts*. Effective farm management, such as well maintained, drip-free water lines, reduces the level of infective *oocysts* in the litter, as desiccation significantly reduces *sporulation* (formation of nearly dormant forms of protozoa in spores that preserves the genetic material until the conditions are inhospitable).

Manny commercial vaccines are available that consist of living, *sporulated oocysts* of the various *coccidial* species administered at low doses. Anti-*coccidial* vaccines are given to day-old chicks, either at the hatchery or on the farm. Since the vaccines serve only to introduce infection, chickens are reinfected by the progeny of the vaccine strain on the farm at later stages.

Many anti-*coccidial* drugs are available for the prevention or treatment of *coccidiosis* in chickens and other poultry, like turkey and ducks. All commercial, intensively farmed flocks are administered anti-*coccidial* drugs as prophylactic measures. They are given in the feed to prevent disease and the economic loss often associated with subacute infection. Prophylactic use is preferred because most of the damage occurs before signs become apparent and because drugs cannot completely stop an outbreak.

Treatments are usually given by water because of the logistical restraints of feed administration. Antibiotics and increased levels of vitamins A and K are sometimes used in the ration to improve the rate of recovery and prevent secondary infections.

Diclazuril and toltrazuril are highly effective against a broad spectrum of *coccidia*. Diclazuril is used mostly for prevention at one ppm in the feed, whereas Toltrazuril is mainly used for treatment in the water.

Toltrazuril works against all *Eimeria* species and intracellular stages of coccidian and is compatible with most commonly-used feed additives. It does not interfere with the development of stable immunity. Water-based treatment, the preferred treatment regime for coccidiosis is comfortable in administration and fast and effective control and reduce economic losses. It has a high safety margin with no reduction of feed or water intake, or any depression in the growth rate and feeds conversion.

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PM Imran orders action ...

Continued from page 04

He also directed the chief secretaries that no favour or leniency be shown to check adulteration.

Earlier in April, the government had promulgated an ordinance for taking stern action against hoarders and artificial price hike of 32 consumer items. Under the ordinance, hoarders will face a maximum imprisonment of three years and a fine equivalent to 50pc of the value of seized items.

PVMA demands safe recovery ...

Continued from page 04

They demanded immediate and safe recovery of their colleague and argued that if he was wanted by police in any criminal case, he should be produced in a court of law and given a rightful opportunity to defend himself.

UVAS celebrates World Snake ...

Continued from page 04

The seminar was very informative and much appreciated by the attendees. Certificates of participation were also given to all participants. World Snake Day is celebrated globally on 16th July annually. ***-PR***

Pre-weaning kids mortality ...

Continued from page 10

6. Age of dam: Age of the dam is one of the critical factors that affect the kid's mortality. However, information concerning this aspect was not adequately available at the farm; therefore authentic data was absent by concerned authorities. It was also reported that nulliparous dams bear a high mortality ratio (17%) than those of multiparous dams (7.2%). It was resulted due to lower birth weight of nulliparous animals as compared to multiparous animals those have higher birth weight.

7. Breeding system: It appeared that the controlled breeding system was mostly in vogue at the farm for maximum survival among kids of the goat. Under this system, breeding was carried out twice a year (March to April / September to October). In controlled management system of goat farming kidding was organized in such season that proved most favorable for kid's survival. It is reported a specific effect of breeding system on kids mortality among kids of Jamnapari goats. Dams bred in April-June showed higher mortality of the kids. The kidding resulted in the winter (September-November). While the dams bred in October-December faced lower mortality of the kids. Kidding season of such goats occurred in the months of March-May i.e. summer season.

8. Diseases: The highest rate of mortality among kids of different breeds was due to pneumonia (37.45%), followed by gastroenteritis (33.45%), enteritis (19.27%), heatstroke (8.0%), and coccidiosis (1.81%). Significant losses due to kid's mortality, as assessed from this study, were supported. As reported, pneumonia is significant cause of death in kids followed by gastroenteritis, enteritis, heatstroke, and coccidiosis.

Water Depletion

Continued from page 11

tumour formation and weakness.

Reduction in groundwater affects biodiversity and grievous sinkholes due to depleted aquifers. These sinkholes which are produced by a lower water table, may destroy buildings and homes. During the last year, Pakistan faced the worst shortage of freshwater. Earlier, we had to bear drought in Baluchistan and many other areas such as Sindh, Bahawalpur but the almost whole country is affected. Due to Acute reduction in the rain, snowfall and less melting of ice in the hilly areas, our rivers dry up. Water in dams also decreases to a dangerous level. As Pakistan is an agricultural country, so water is life-blood of our economy.

Solutions of Water Depletion

We can solve this issue by following ways. We should use less water for splendour basis. To reduce this, everyone should be careful about using water. We can preserve water by declining the use of washing machines, dishwashers and other things. Also, we can save a large amount of water by preventing water usage in embellishing and non-functional reasons and by controlling the population as more people use more water.

We should diminish the use of chemicals and dump them appropriately. Water releases from business and private residences which flow in streets and sewage system are full of chemicals. These chemicals enter into large water bodies and seep into ground affecting animals and soil. By filtration and processing tainted water, we can make it less harmful for health.

We should make new dams for storing water for future use. Dams store a large amount of water. We should construct concreted canals so that water does not seep within the ground. Management should be better, and there should be a proper check and balance. Proper awareness should be given about worth of freshwater. We can restock a lot of water in the agricultural sector by using the sprinkling system. We can get rid of climate changes by reforestation. This will prevent the greenhouse effect and global warming and leads to more precipitation. By this way melting of glaciers will not occur

Laws for the dumping of water should be harsh and should follow careful regulations. One of the best ways to decrease water depletion is to discover alternative sources of water. These sources can be used to restore aquifers. Drawing water from other sources produces a lot of time to restock aquifers.

Conclusion

In short, water is a blessing of Allah Almighty, and life is impossible without it. Hence we must be careful in using water for different purposes. We should hoard it to produce comforts for our future generation.

CRISPR/Cas9: A promising ...

Continued from page 11

nucleases. CRISPR/Cas9 technology overcome the above shortcomings and provide with a most widely applied genome editing system. It is inexpensive with a simple design having high efficiency. Berkeley first developed CRISPR/Cas9 (Clustered Regular Interspaced Short Palindromic Repeats) in 2012, which uses a site-directed approach to target DNA. Its major components are gRNA (Guide RNA) and Cas9 (CRISPR associated) protein. Cas9 protein is an RNA dependent DNA endonuclease that is coupled with the gRNA. It is a nucleotide sequence of about 20 bps having complementarity with the target sequence of DNA. It is also essential for recruiting Cas9 protein at the target site. Target site recognition by the CRISPR/Cas9 system is accompanied by the complementary sequence-based interaction between gRNA and DNA of the target site. CRISPR/Cas9 is a highly versatile system with multiplexing ability. Alternatively, this system can be combined with other plant breeding techniques to get amazing results. Both simplicity and high specificity of the system make it a game-changer genome editing tool as compare to its predecessors, making it a more reliable device.

Colostrum feeding in ...

Continued from page 14

- 15-30 minutes of life - 5-8 % of body weight
- 10-12 hours of life - 5-8 % of body weight
- 2nd day - 10% of body weight
- 3rd day - 10% of body weight

❖ Excess colostrum's can be milked out daily otherwise the calves can drink in excess and results in calf scour.

❖ The excess colostrum can be stored by refrigeration and can be used to other calves or orphan calves.

❖ Colostrum can also be freezed and stored indefinitely. colostrum can also be fermented naturally and stored for 5-7 days and can be used.

UVAS achieves breakthrough ...

Continued from page 14

fertilisation with processed sperms of a high merit bull under specialised culture conditions in a laboratory.

"The embryos are then transferred to recipient cows for the production of live calves."

Answering a question, Mr Ahmed said the technology at the UVAS was being used under a project funded by the Higher Education Commission Islamabad.

Giving further details, he said the experiments of the project were conducted at the Livestock Production Research Institute (LPRI) Bahadur Nagar Farm Okara and embryology laboratory of the UVAS at its Ravi Campus Pattoki.

Mr Ahmed further said experts from Pakistan, China and USA had contributed to achieve this success.

He expressed hope that if government supported this project, Pakistan could compete with Brazil, the largest producer in the world to develop embryo production.

Regarding its importance, he said the UVAS, in collaboration with the Livestock and Dairy Development Department, aimed to use this technique for enhancing the milk and meat production potential of our native breeds.

The VC lauded the efforts of Dr Amjad Riaz, in-charge embryology laboratory and chairman Department of Theriogenology, and his research team, including Dr Mudussar Nawaz and Dr Muhammad Saleem, for the achievement.

University of Education VC Prof Dr Talat Naseer Pasha (former VC UVAS) also appreciated the embryology team of the UVAS.

Antimicrobial resistance ...

Continued from page 17

them to be resistant. For instance, our poultry industry where chicks of mostly broilers and layers from day first are put on drugs which resultantly proves to be fatal and broilers become a vector to resistant disease causative agents and immune system fails to protect. Same conditions happen in livestock and dairy farming industry 70% of antibiotics are utilised routinely, and backyard farmers do not checkup the routine practice.

We've so much indulged in producing new varieties and crossbreds through artificial insemination or some other ways for the production markets without assuming that what havoc it would cause. Their age, immunity, adjustment to suitable habitat etc. These factors are just in vain to be catered because farmers are certainly concerned with one thing that is to be elite. Thus, regularity in antibiotics usage with no proper cause has proved a catastrophe for veterinarians to tackle.

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DOSAGE:
Treatment: 1 gm per 2 liters of drinking water for 3 to 5 days.
Prophylaxis: 1 gm per 2 liters of drinking water for 3 to 5 days.

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Cattle: 600mg per 50 kg body weight daily for 3 to 5 days.
Sheep & Goat: 600mg per 50 kg body weight daily for 3 to 5 days.

PACKING:
1Kg

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SARS-CoV-2: Its Structure and Progress of Disease

By Muhammad Zain Habib, Muhammad Ahmad
College of Veterinary and Animal Sciences, Jhang

Covid-19 is disease spread by SARS-CoV-2. Coronaviruses are a big family of different viruses. Some of them cause the common cold in people. Others infect animals, including bats, camels, and cattle. Experts say SARS-CoV-2 originated in bats. SARS-CoV-2 made the jump to humans at one of Wuhan's wet markets. Total number of cases repored in Pakistan is 132,405 upto 13 June 2020 and total number of active cases is 79,798, recovered is 50,056 and total deaths is 2551.

Structure

It is positive sense single stranded enveloped RNA virus. It has spike protein named as S protein. RNA wrapped in nucleocapsid protein, N.

It is the 7th known human corona virus. Others are SARS-CoV, MERS-CoV, 'Colds' = HKU1, NL63, OC43, 229E. This virus is not a laboratory construct. This virus is totally emerged from natural selection. There is no evidence has been found that it is manipulated.

It has two notable genomic features

- It is optimized bound to ACE2 receptor.
- The spike protein has a functional polybasic (furin) cleavage site at the S1-S2 boundary through the insertion of 12 nucleotides

The spike protein binds to the ACE2 receptor on cell surface. It has high affinity for binding to ACE2 in humans, ferrets and cats.

Cell Entry

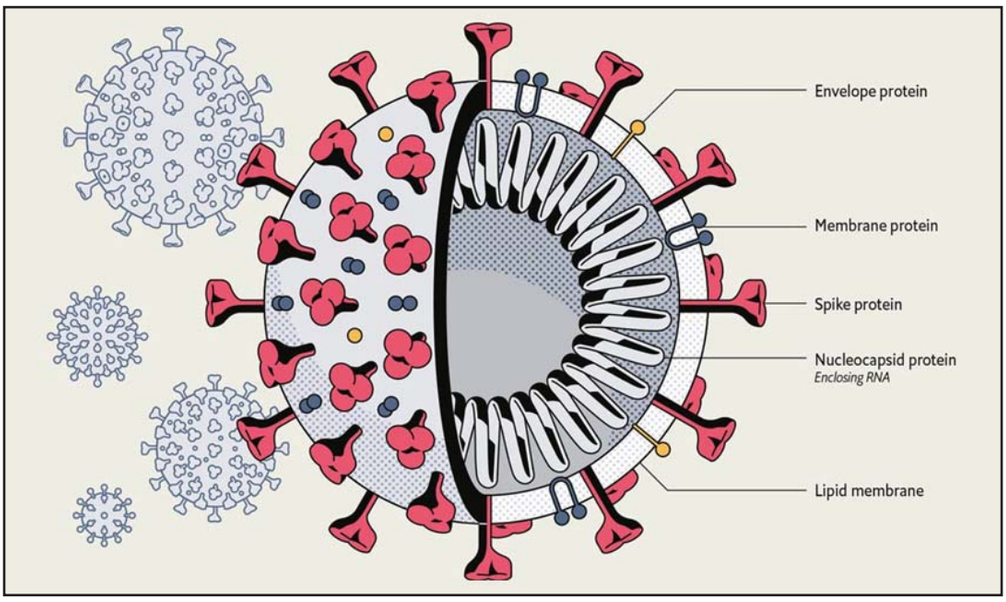
As in SARS-CoV and MERS, human proteases activate the spike protein. In SARS-CoV-2, furin and other proteases1, including serine protease TMPRSS22, cleave the spike protein at the junction of its two sub-units (S1/S2). This is similar to MERS3 where the cellular proteases furin, cathepsin L and TMPRSS2 can activate MERS-S and may cleave the S protein at two distinct sites, termed S1/S2 and S2?.

Replication

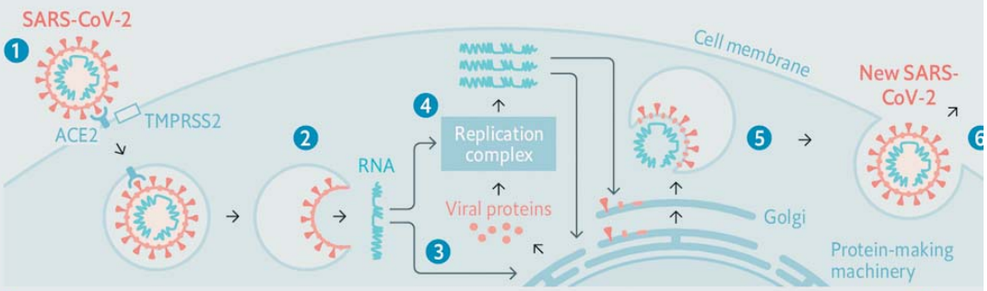
Spike protein on the virion bind to ACE2 receptors and enter in cell. The virion releases its RNA. Some RNA is translated into proteins by the cell's machinery. Some of the proteins form the replication complex to make more RNA. Proteins and RNA are assembled into new virion in the Golgi.Then virus release form the cell Corona virus genome is bigger than other RNA viruses 3 x HIV,2 x influenza virus, and,1.5 x Ebola virus. It has four genes for structural proteins and eight genes for small accessory proteins that destroy host defense system

Viral Encoded proteins

This protein work as cellular saboteur as it slows down the production of infected cell's own protein and force the cell to make viral protein and it stop the cell to make assembly of antiviral proteins.NSP2 role is uncertain and most probably it attaches other proteins.NSP3 function is cutting of other viral proteins so that they can complete their own task.NSP4 acts as Endosome maker. It builds endosomes inside the effected cell and inside the endosome parts of new copies of virus is formed.NSP5 acts as Protein Scissors. It provides most of the cuts that separate other NSP proteins to carry their own jobs.NSP6 acts as endosome factory. It work with NSPe and NSP4 to make endosomes where newly developed virus is present.NSP7 & 8 acts as copy assistants and helps NP12 replicate the viral RNA.NSP9 protein hijacks the host's immune system. It infiltrates tiny channels in the infected cell's nucleus, which holds our own genome.NSP10 make camouflage with NSP16 so that viral genome remain protected and not attacked by antiviral proteins.NSP11 Purpose is unknown. Its genome sequence overlaps with NSP12.NSP12 assemble bases into new virus genomes. The antiviral remdesivir interfere eith NSP12 in other coronaviruses .The S protein form spikes on surface of virus which gives coronavirus their name. These spikes protein attached to the ACE2 receptor on the outside of host cell. After binding the virus can infect the cell. The gene for spike protein in SARS-CoV-2 is a 12 genetic letters: ccucggcgggca, which help the virus to bind tightly to human cells.



How SARS-CoV-2 replicates itself in the cells of those infected



1 Spike protein on the virion binds to ACE2, a cell-surface protein. TMPRSS2, an enzyme, helps the virion enter 2 The virion releases its RNA 3 Some RNA is translated into proteins by the cell's machinery 4 Some of these proteins form a replication complex to make more RNA 5 Proteins and RNA are assembled into a new virion in the Golgi and 6 released

Testing, testing

Promising drugs to treat covid-19

Drug	Current use	Original mode of action	Being tested?
Chloroquine	Antimalarial	Heme polymerase inhibitor	Yes
Kaletra (ritonavir + lopinavir)	HIV	Protease inhibitor	Yes
Interferon alfa-2b	Hepatitis-C	Immune modulator	Yes
Remdesivir	Experimental	Nucleotide analogue	Yes
Favipiravir	Influenza	RNA polymerase inhibitor	Yes
Actemra (tocilizumab)	Rheumatoid arthritis; covid-19	Anti-inflammatory	Approved*
Kevzara (sarilumab)	Rheumatoid arthritis	Anti-inflammatory	Trials expected

Source: WHO, adapted from landscape analysis, 17th February 2020 *For use on covid-19 in China, March 2020

The Economist

Progress of Disease:

Day 1 Patient may have fever, dry cough, shortness of breath. Some people may have muscle pain. Day 3 Severe cases require hospitalization. Day 5 Difficulty in breathing. Day 8 Shortness of breath, Pneumoia, ARDS. Day 10 Admission to ICU, abdominal pain, appetite loss. Day 17 is average time to discharge for those who recovered. Day 27 is average time to discharge for those who recovered. Common symptoms are Fever 98% Cough 76% Myalgia 44% and Less common symptoms are Sputum production 28% Headache 8% Haemoptysis 8% Diarrhea 3%.

Median duration of virus shedding in survivors is 20 Days. Longest duration of virus shedding in survivors is 37 Days. Infectiousness start at 2.5 days before the onset of symptoms and reaches at its peak level at 0.6 days .Viral diagnostic test is Antibody Test Viral antigen detection test, viral culture, Viral DNA or RNA detection test. Its Vaccine is currently in early development (preclinical) and different mechanisms are being used for vaccine development.

Treatment:

Its Treatment is to treat symptoms, inflammation and viral growth.

There is no any valid treatment for Covid 19 disease. Only supportive treatment is helpful. Plasma therapy is used. The plasma of recovered Covid patient is helpful in treatment for patients.

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دودھ پینے والے بچوں کو 30-35 دن سے پہلے ماں سے علیحدہ مت کریں کیوں کہ ایسا کرنے سے اموات 100 فیصد یقینی ہوجاتی ہے۔ فارمر کو سب سے زیادہ اشو بھی چھوٹے بچوں کی اموات کا ہی ہے اور اس کی بنیادی وجہ پنجروں کی صفائی نہ کرنا دودھ پیتے بچوں کو ماں سے علیحدہ کرنا اور بچوں کو نہ مناسب خورک دینا ہے۔

﴿انگورا اُون﴾

انگورا خرگوش کی فارمنگ اُون حاصل کرنے کے لیے کی جاتی ہے۔ انگورا اُون باقی تمام اقسام کی اُون سے چھ گنا زیادہ گرم ہوتی ہے اور نسبتاً نرم وملائم کے ساتھ ساتھ کسی قسم کا الرجی اثرات بھی نہیں رکھتی، انگورا اُون سے بنائی گئی اشیاء اپنے کم وزن اور زیادہ گرمائش کی وجہ سے اپنا ثانی نہیں رکھتی۔

انگورا اُون جیسے ہی بڑی ہونا شروع ہو اس کو نرم دندوں والے برش کے ساتھ سنوارنا شروع کردیں۔ اور اُون کی صفائی کا خاص خیال رکھیں۔ کیونکہ اس کی صفائی کی بنیاد پر اسکی قیمت ملتی ہے۔ جو اُون جتنی صاف اور لمبائی میں ہوگی اسکی اتنی ہی زیادہ قیمت ہوگی۔ اس لیے اُون اتارنے کا مرحلہ سب سے اہم ہوتا ہے۔ اُون کو ہر تین ماہ بعد اتارا جاتا ہے۔ اُون کی لمبائی اٹھ سے لیکر بارہ سینٹی میٹر تک ہوتی ہے۔ اور اس کے بعد اُون بالوں میں تبدیل ہوجاتی ہے۔ جو کہ استعمال کے قابل نہیں رہتی۔ اُون کو اتارنے کے بعد پلاسٹک کے لفافے میں فٹائل کی گولیاں ڈال کر اُون کو محفوظ کیا جاتا ہے اور پھر اس سے دھاگہ بنا کر مختلف قسم کی ٹوپیاں بیگ، جیکٹ، چادریں وغیرہ تیار کی جاتی ہیں۔

﴿افزائش نسل﴾

ایک مادہ انگورا خرگوش 5-6 ماہ کی عمر میں بریڈ کے قابل ہوجاتی ہے۔ اور ایک دفعہ میں نارمل 2 سے لیکر 11 تک بچے دیتی ہے۔ اور اس کے حمل کا دورانیہ 28 سے لیکر 31 دن تک ہوتا ہے۔ انگورا خرگوش مادہ سال میں 3-4 بار بچے دیتی ہے۔

10 مادہ خرگوشوں کے لیے ایک میل کافی ہوتا ہے۔ اگر ایک سے زیادہ میل ہوں تو وہ آپس میں لڑتے ہیں جس سے موت بھی ہو سکتی ہے۔ میل اور فی میل کو علیحدہ رکھا جاتا ہے اور جب کراسنگ کرانی ہوتی ہے۔ تو مادہ کو نر کے پنجرے میں ڈالا جاتا ہے۔ اگر کراسنگ کے دوران نر ایک سائیڈ کی طرف گر جائے تو اس کراسنگ کو کامیاب تصور کیا جاتا ہے۔

نر خرگوش و حاملہ مادہ خرگوش کی خوراک کا خاص خیال رکھنا چاہئے۔ عموماً حاملہ مادہ جب بچے دینے کے لیے تیار ہوتی ہے تو گھونسلہ تیار کرتی ہے۔ اس لیے روئی اور ساکھی گھاس ڈال دینی چاہئیے۔ اور حاملہ مادہ کے لیے خاص قسم کے پنجرے تیار کیے جاتے ہیں یا عام پنجروں میں Nest Box رکھے جاتے ہیں جس میں مادہ گھونسلہ بنا کر بچے دیتی ہے۔

مادہ خرگوش بچے دینے سے پہلے اپنے جسم کے نیچے والے سارے بال گرا دیتی ہے تا کہ بچے دودھ آسانی سے پی سکیں۔

جب بھی مادہ کو نر کے ساتھ کراس کریں اور دس دن بعد حاملہ سے بچوں کو Palpate کریں اگر آپ کو مادہ کے پیٹ میں چھوٹی گلٹی نما چیز محسوس ہو تو سمجھ لیں مادہ حاملہ ہے ورنہ دوبارہ مادہ کو کراسنگ کے لیے میل کے پاس صبح کے ٹائم چھوڑ دیں۔

﴿بیماریاں اور احتیاطی تدابیر﴾

1۔ کان کی بیماری جسے سائنسی زبان میں (ear canker) کہا جاتا ہے۔ انگورا خرگوش میں یہ بیماری بہت عام ہے اس کی بنیادی وجہ پنجروں کی اچھی طرح صفائی نہ کرنا ہے۔ اس لیے اگر بیماری کو کنٹرول کرنا ہے تو پنجروں کی صفائی اچھی طرح کریں۔ ہفتے میں ایک مرتبہ لازمی ہر خرگوش کے کانوں کو چیک کریں اگر کان خراب ہوں تو ان کی اچھی طرح صفائی کریں کانوں کی صفائی کے لیے ہائیڈروجن پراکسائیڈ کا استعمال کریں۔

2۔ انگورا خرگوش میں جلد کی بیماری بھی عام ہے جس میں اس کی اُون جھڑ جاتی ہے اس کے لیے بہترین دوا conifur ہے جس کو نیم گرم پانی میں ڈال کر خرگوش کے جسم پر 10-15 منٹ تک خوب رگڑیں اور نیم گرم پانی سے دھولیں۔

3۔ انگورا خرگوش میں سب سے زیادہ جو خطرناک بیماری ریکارڈ کی گئی ہے وہ خرگوش کا پیٹ خراب ہونا ہے اس میں خرگوش کا پاخانہ بڑا پتلا ہوجاتا ہے اور کھانا پینا بہت کم کردیتا ہے جس کی وجہ سے جسم میں کمزوری اور پانی کی کمی کی وجہ سے اموات بہت زیادہ ہوتی ہیں اس لیے بہتر ہے کہ جلد ہی ڈاکٹر سے مشورہ کریں یا انسانی بچوں کے استعمال کی دوائی (imodium) اور ساتھ ringer lactate کا استعمال کریں۔

4۔ اکثر خرگوش آپس میں لڑائی کے دوران ایک دوسرے کے بال کھینچ کر نگل لیتے ہیں جس سے چھوٹی آنتھ اُون کی وجہ سے بند ہوجاتی ہے اور اس بیماری کو فر بلاک (Fur Block) جو سخت گھاس کھانے سے ٹھیک ہوسکتی ہے۔

5۔ سردیوں میں انگورا کے بال کاٹنے سے انگورا نمونیا کا شکار ہو جاتا ہے اس لیے کوشش کریں سخت سردی میں بال نہ کاٹے اگر بال کاٹنا مقصود ہو تو جانور کو گرم جگہ مہیاء کریں۔

6۔ بازدفعہ وٹامن اے کی کمی کی وجہ سے انگورا کی آنکھیں خراب ہوجاتی ہیں اس بیماری کی صورت میں وہ خوراک دیں جس میں وٹامن اے زیادہ ہو۔

7۔ طفیلیئے (چیچڑ، جوئیں وغیرہ) خرگوش کا خون چوستے ہیں جس سے جانور کمزور ہوجاتا ہے اور یہ طفیلیئے اُون کو بھی بُری طرح متاثر کرتے ہیں۔ اِن طفیلیات کو کنٹرول کرنے کے لیے صفائی کا خاص خیال کریں اور کیڑے مار ادویات (Ivermectin) اور (Dewormers) کا استعمال کریں

﴿انگورا خرگوش کی فیزیبلٹی رپورٹ﴾

اگر ایک مادہ انگورا خرگوش ایک سال میں 4 دفعہ 6 کی اوسط سے بچے دے تو آیئے دیکھتے ہیں ہم ان سے کتنی انکم لے سکتے ہیں۔

ایک مادہ 24=6×4، ٹوٹل بچے 24

آج کل ایک اچھی کوالٹی کے بچے کی جوڑی کا ریٹ کم سے کم دس ہزار روپے ہے اور دو ماہ بعد بھی اگر 10 ہزار روپے والی جوڑی 7 ہزار پر بھی سیل کریں تو انکم کچھ یوں ہوگی۔

12x7000 + 84,000/-

اگر آپ اس میں سے 24,000 اخراجات، بچوں کی اموات وغیرہ رکھ لیں پھر بھی آپ کو -/50,000 کی بچت ہے۔ یہ فیزیبلٹی صرف سمجھانے کے لیے ہے جبکہ خرگوش فارمنگ میں اس سے بھی زیادہ منافع کے چانسز ہیں۔

﴿انگورا خرگوش کے نمایاں فوائد﴾

1۔ انگورا خرگوش کی اُون بہت قیمتی ہے اور مختلف رنگوں میں ملتی ہے۔

2۔ گوشت میں چربی کم ہوتی ہے اور کولیسٹرول بھی کم ہوتا ہے جو دل کے مریضوں کے لیے بہترین تصور کیا جاتا ہے۔

3۔ انگورا کے پیشاب سے اچھی کھاد تیار ہوتی ہے۔

4۔ انگورا کے اُون اور کھال سے جیکٹ، ٹوپیاں، بیگ اور دیگر اشیاء تیار ہوتی ہیں۔

5۔ مردہ خرگوش کی کھال سے بچوں کے کھلونے بنائے جاتے ہیں۔

6۔ انگورا کی آنتھ سے جراحی کا دھاگہ تیار کیا جاتا ہے جو کہ آپریشن میں کام آتا ہے۔

7۔ انگورا اُون بہترین wound healer ہے۔

8۔ انگورا ایک خوبصورت pet جانور ہے۔

9۔ کم آمدنی سے اسکی فارمنگ کی جاسکتی ہے۔

10۔ خوراک کا خرچہ بہت کم ہے۔

11۔ آمدنی کا بہترین زریعہ ہے۔

پاکستان کا پہلا آزاد ویٹرنری رسالہ

اے۔وی۔این

ایگرو ویٹرنری نیوز

انگورا خرگوش آسان فارمنگ اور منافع بخش کاروبار

تحریر: ڈاکٹر محمد جمیل، ڈاکٹر نومان لطیف، احسان الٰہی

پاکستان زرعی تحقیقاتی کونسل، زرعی تحقیقاتی مرکز برائے خشک علاقہ جات، ڈیرہ اسماعیل خان

اللہ تعالیٰ نے انسان کو اشرف المخلوقات پیدا کیا ہے اور زمین پر موجود تمام مخلوقات کو انسان کی خدمت کے لیے پیدا فرمایا ہے۔ زمین سے اُگنے والی سبزیاں ہوں یا پھل، یا پھر جانوروں سے حاصل کردہ دودھ، گوشت، اُون یا انڈے، یہ سب ہماری خوراک وضروریات کا بنیادی حصہ ہیں۔ قانون قدرت کے مطابق انسان اور جانور دونوں ہمیشہ ایک دوسرے کے لیے لازم اور ملزوم ٹھہرے ہیں۔ ہمیشہ سے انسانوں کی یہی کوشش رہی ہے کہ جانوروں سے زیادہ سے زیادہ دودھ، گوشت، اُون، انڈے وغیرہ حاصل کی جائیں اس مقصد کے لیے تجرباتی مراکز بنائے گئے ہیں۔ پاکستان میں بھی ملکی سطح پر زراعت اور اس سے متعلقہ شعبوں میں تحقیق کے حوالے سے پاکستان کے چوٹی کے زرعی تحقیقاتی ادارے ''پاکستان زرعی تحقیقاتی کونسل'' کی خدمات روزِ روشن کی طرح عیاں ہیں۔ فصلوں واجناس کی نئی اقسام متعارف کرانے کی بات ہو یا جانوروں کے حوالے سے خوردبینی سطح پر تحقیقات کا میدان ہو، پاکستان زرعی تحقیقاتی کونسل کے سائنسدانوں کی خدمات کا شمار صفِ اول میں ہوتا ہے۔ کونسل کے ملک بھر کے مختلف حصوں میں ذیلی ادارے ہیں جو زرعی وحیواناتی تحقیق کے حوالے سے اپنا کام سرانجام دے رہے ہیں۔ ''زرعی تحقیقاتی مرکز برائے خشک علاقہ جات''، ڈیرہ اسماعیل خان بھی ایک ایسا ہی ذیلی ادارہ ہے جہاں فصلوں اور پالتو جانوروں کے حوالے سے تحقیقاتی کام سرانجام دیا جا رہا ہے۔ زیرِ نظر کتابچہ میں آپ زرعی تحقیقاتی مرکز برائے خشک علاقہ جات، ڈیرہ اسماعیل خان کے سائنسدانوں کی جانب سے انگورا خرگوش فارمنگ کے مطلق آگاہ ہوں گے۔

﴿تعارف﴾

انگورا خرگوش دنیا کا سب سے خوبصورت خرگوش ہے اور یہ چھوٹا سا جانور اپنی چمکدار، نرم وملائم اور دلکش اون کی وجہ سے دنا بھر میں مقبول ہے۔ دنیا میں اس کی ابتداء ترکی سے ہوئی اور بعد میں پوری دنیا میں اس کی فارمنگ شروع ہوگئی۔ اور پاکستان میں پہلی مرتبہ ''پاکستان زرعی تحقیقاتی کونسل اسلام آباد'' نے انگورا خرگوش متعارف کرائے۔ اس مقصد کے لیے قومی ''زرعی تحقیقاتی مرکز اسلام آباد'' میں ایک ماڈل خرگوش بنایا گیا اور ابتداء میں خرگوش نیپال سے درآمد کیے گئے اور جو انگورا خرگوش کی پاکستان میں پرورش کا ایک ترقیاتی منصوبہ بنا اور بعد میں اس منصوبہ کے مطابق غریب خاندانوں میں تقسیم کیئے گئے تاکہ لوگوں کو روزگار مل سکے۔ پاکستان میں باقاعدہ طور پر کمرشل لیول پر خرگوش فارمنگ کو متعارف کرنے اور اس انڈسٹری کو فروغ دینے کے لیے قومی زرعی تحقیقاتی مرکز اسلام آباد کا بہت اہم رول ہے۔

﴿انگورا خرگوش کی اقسام﴾

دنیا بھر میں انگورا خرگوش کی مختلف اقسام ہیں مثلاً جائینٹ، انگلش، فرنچ، ساٹن، جرمن کیلوفورنین، نیوزی لینڈ، رشین، فلیمش وغیرہ، پاکستان میں انگلش اور جائنٹ انگورا کی تعداد بہت زیادہ ہے۔ اور پاکستان میں جائنٹ انگورا کی فارمنگ بہت کامیاب ہے۔ کیونکہ اسکو گرم علاقہ جیسے کہ ڈیرہ اسماعیل خان میں جسکا درجہ حرارت 50c تک بھی چلا جاتا ہے وہاں بھی کامیابی سے انکی فارمنگ ''پاکستان زرعی تحقیقاتی اِدارہ برائے خشک علاقہ جات'' (PARC-AZRC) (DIKhan میں کی گئی ہے۔

﴿انگورا فارمنگ کے لیے بنیادی اصول اور رہنمائی﴾

انگورا خرگوش فارمنگ بڑا ہی منافع بخش کاروبار ہے جو کہ عام لوگ بھی آرام سے پارٹ ٹائم یا سائیڈ بزنس کے طور پر آسانی سے کر سکتے ہیں اگر آپکے پاس تھوڑی سی انوسمنٹ اور صبح و شام آدھ گھنٹہ دے سکتے ہیں تو یہ آپ کی لیے بہترین کاروبار ہے۔

﴿انگورا فارمنگ شروع کرنے کے طریقے﴾

آپ خرگوش فارمنگ 2 طریقوں سے آسانی سے کر سکتے ہیں۔

1۔ بچے خرید کر (Bunnies)

2۔ بریڈر (Breeder)

1۔ بچے خرید کر: اگر آپ کے پاس انوسمنٹ کم ہے تو آپ بریڈر کی بجائے بچے خرید کر انگورا فارمنگ شروع کریں جو کہ آپ کو 7 ہزار سے لیکر 30 ہزار مل جائیں لیکن خیال کریں کے بچے دو ماہ سے زیادہ عمر والے لیں کیونکہ چھوٹے بچوں میں اموات زیادہ ہوتی ہیں۔

2۔ بریڈر: اگر آپ کے پاس انوسمنٹ زیادہ ہے تو آپ بریڈر لے کر بھی انگورا فارمنگ شروع کر سکتے ہیں بریڈر آپ کو مارکیٹ میں 30 ہزار سے لے کر 60 ہزار تک مل سکتے ہیں۔

ایک مادہ انگورا خرگوش چھ ماہ کی عمر میں بریڈر کے قابل ہو جاتا ہے اور ایک دفعہ میں نارمل دو دفعہ سے لیکر گیارہ دفعہ تک بچے دیتی ہے۔ اور اس کے حمل کا دورانیہ 29 سے لے کر 32 دن ہوتا ہے۔

﴿انگورا خرگوش کے لئے پناہ گاہ﴾

انگورا خرگوش چونکہ اون حاصل کرنے کیلئے رکھا جاتا ہے۔ اس لئے ضروری ہے کہ اسے صاف ستھری جگہ پر رکھا جائے اور اس کی فارمنگ پنجروں میں بہت کامیاب ہے۔

انگورا کا شیڈ ایسی جگہ پر ہونا چاہیئے جہاں پر ہوا اور روشنی کا مناسب انتظام ہو۔ انگورا گرمی کو برداشت کرنے کی قوت بہت کم رکھتا ہے لہذا کوشش کریں کہ شیڈ کو ٹھنڈا رکھیں سردیوں میں خرگوش کے گھونسلے کو گرم رکھنے کے لیے اس میں سوکھی گھاس اور روئی ڈال دیں۔

﴿خوراک﴾

انگورا کو ہمیشہ متوازن خوراک اور تازہ پانی دیا جائے۔ انگورا کی خوراک میں لحمیات روغنیات اور نشاستہ، معدنیات جیسا کہ مکئی، بھوسہ، خشک گھاس،

بقیہ صفحہ نمبر 23

Printed at Clifton Printers, BC-11, Block-9, Clifton, Karachi - 75600, and published by S. Hashim Hasan, 1485 C/5-4, Allauddin Road, Lahore Cantonment, Lahore.