## your ETERINARIAN

## THE VOICEOF VETERINARIANS

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PET $\gg$

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## Biographies of Authors

## Dr. Niranjala de Silva (FSLCVS, PhD, BVSc)



Dr. Niranjala de Silva is a Senior Lecturer in the Department of Veterinary Clinical Sciences (DVCS), Faculty of Veterinary Medicine and Animal Science, University of Peradeniya. She was the Head of DVCS and a member of University Senate. She is specialized in Veterinary Anaesthesia, Surgery and Diagnostic Imaging. She obtained her PhD from University of Cambridge, UK and a winner of Cambridge Trust Scholarship. She was instrumental in establishing the new Veterinary Teaching Hospital since early 2020s and still striving to upgrade the services provided by it. She is a Fellow of Cambridge Commonwealth Trust and Founder Fellow and the present President of the Sri Lanka College of Veterinary Surgeons. She is also a member of the Veterinary Council of Sri Lanks and was the immediate past President of Sri Lanka Veterinary Association (SLVA).

## Prof. Ashoka Dangolla



He joined the Department of Veterinary Clinical Science in 1989, served as the first resident clinician at Veterinary Teaching Hospital and currently serving as a Professor, and as an Honorary Director for the Ministry of Wildlife and Forest Conservation. He has held positions of Head of the Department, Warden, Deputy Proctor, Proctor, Student counselor, Chairman of Sports Advisory Committee and President of the Sri Lanka Universities Sports Association. He has supervised MSc, MVSc., MPhil and PhD students, published on areas of dogs, cats, goats, pigs, monkeys and elephants with special interest on human animal conflict.

Dr. M.Ijas. B.VSc, MBA (PIM), PG-Dip, (Colombo) M.Sc (Melbourne)


Dr. M. Ijas is the Chief Municipal Veterinary Surgeon of Colombo Municipal Council, where he has worked well over 20 in the capacity of Public Health Veterinarian. He holds a multifaceted academic credentials and undergone many trainings in Rabies control, Food Safety and Animal Welfare. After completing the degree in Veterinary Science, he has obtained local and overseas postgraduate qualifications in the fields of Business Administration, Toxicology and Food Science.
Dr. Ijas is an 'Australian Leadership Scholar' and holds a M.Sc in Food Science awarded by University Melbourne, Australia and holds an MBA from Postgraduate Institute of Management of University of Sri Jayewardenepura. And he has undergone many animal welfare trainings programmes in the United Kingdom. Dr. Ijas is a versatile Veterinarian who has contributed to the Veterinary profession through trade union and SLVA activities. His expertise in Veterinary public health and networking capacity was instrumental to take over the rabies control programme under the department of Animal Production. Dr ljas was a member of the inter-ministerial technical committees mandated to make new enactments, and amending existing enactments such as Animal Welfare Act, Animals Act, Rabies Eradication Act and Butchers Ordinance of Sri Lanka. And he is a visiting lecturer at different universities including the Faculty of Veterinary Medicine, and Animal Science of University of Peradeniya.
Dr. Ijas is a cat-lover and keen follower of sports \& politics.

## Dr. Dilan Amila Satharasinghe (BVSc, MVM, PhD)



Dr Satharasinghe graduated from the Faculty of Veterinary Medicine and Animal Science in 2006 and later obtained a MVM in Biosecurity from Massey University in 2012, New Zealand and year 2016, a PhD in Immunology at the University Putra Malaysia. Presently he is a senior lecturer at the University of Peradeniya.

## Dr. Deepika Wanninayake (BVSc)











## Dr.(Mrs.). Narmathaa Cumuthan (BVSc)



Dr.(Mrs.) Narmathaa Cumuthan is a Veterinary Surgeon at Head Quarters, Department of Animal Production and Health, Eastern Province. Graduated BVSc from the Faculty of Veterinary Medicine of Animal Science, University of Peradeniya in 2012.


Dr. Priyasad Ediriwarne is a Veterinary Surgeon in-charge at Safari Park, National Zoological Department, Ridiyagama. He obtained his BVSc and MVSc from the University of Peradeniya.

Prof. Indira Silva PhD, FSLCVS, BVSc


Professor Emeritus Indira Nanayakkara Silva has over 40 years of experience as a Veterinarian at University of Peradeniya where she held many academic and administrative titles. She was the first female academic to hold the post of Head of Department of Veterinary Clinical Sciences, a member of the University Senate for over three decades, and one of few key persons in setting up the first Veterinary Teaching Hospital in the island. She is a Fulbright scholar with a PhD from the University of California at Davis, USA. She is a past President of the Sri Lanka Veterinary Association, a Founder Fellow of the Sri Lanka College of Veterinary Surgeons, and a member of the Sri Lanka College of Haematologists. Her primary education was at Visakha Vidyalaya, Bambalapitiya, she was a founding member of the Young Zoologists Association (YZA) at National Zoological Gardens and she is the author of four books and many award winning research publications. She is the recipient of the Sahasak Nimavum Gold Medal 2020 and the Dasis Award for the most outstanding invention in the University category by the Sri Lanka Inventors Commission in November 2021.

## Dr. Deepani Jayantha



Deepani Jayantha is a veterinarian and a conservationist. She studied elephant behaviour and human-elephant interactions for more than a decade and has been working on community conservation projects excelling citizen science. She is a member of the IUCN SSC Asian Elephant Specialist Group and currently works as the Country Representative of the Elemotion Foundation. She closely works with various government and non-government conservation organizations, locally and internationally.

## Dr. J.M.K.J.K. Premarathne (BVSc, MPhil, PhD)



Dr. Premarathne is a senior Lecturer of the Department of Livestock and Avian Sciences, Faculty of Livestock, Fisheries and Nutrition, Wayamba University of Sri Lanka. She obtained her undergraduate degree in BVSc (2006) from University of Peradeniya, later she has completed her MPhil in 2013 at the University of Peradeniya. She s completed her PhD in 2017 at the University Putra Malaysia, Malaysia. She is a working as an assessor in the Sri Lanka Accreditation Board (SLAB) for conformity assessment.

## Dr. (Mrs).Thavamalar Gohulathaash (BVSc)



Dr. Thavamalar Gohulathaash is a Government Veterinary Surgeon working in the Government Veterinary Office in Alayadivembu. She has obtain BVSc from the Faculty of Veterinary Medicine and Animal Science, University of Peradeniya. Later she has completed her postgraduate studies of Master in Business Administration in University of South Eastern.

Dr. Uditha Wijesinghe (BVSc, MSc)








## Dr. Sylvia Wijayarathna (BVSc)



Sylvia Wijayarathna, graduated in 2015, and is currently practicing at Veterinary Teaching Hospital, Peradeniya.. Her passions are Animal Rights and Welfare, Feline Medicine and Sri Lankan Dogs, and also has quite a soft spot for horses. She is the proud owner of nine rescue dogs and seven cats.

## Dr. M.J. Nowshad Jamaldeen (BVSc)



Dr. Nowshad Jamaldeen is the Government Veterinary Surgeon in Government Veterinary Office at Thirukkovil, Ampara. He was the former Veterinary Investigation Officer (VIO) at Ampara VIC. He has obtain his BVSc and Master in Veterinary Reproduction from the University of Peradeniya.

## Dr. Nisansala Senevirathna (BVSc)



Dr. Nisansala Senevirathna is the Government Veterinary Surgeon in Government Veterinary Office at Hatton in Central Province. She has obtain her BVSc from the University of Peradeniya in 2015.

## Message from the editorial team

Dear readers,
We are extremely happy that we could issue the 3rd Volume of Your Veterinarian magazine (March 2022) as scheduled for our readers. Our objective of this quarterly magazine is to give some knowledge on important aspects in veterinary related fields and share our thoughts with you. This is a bridge between the veterinarians and the animal lovers, farmers, students \& any other interested people. All the authors of articles are very renowned practitioners, researchers or lecturers who have plenty of experience and knowledge to share with you. Our focus is to improve your awareness about importance of having pet animals, responsible pet ownership, animal welfare, farming \& animal products, nutrition, public health, protection of wildlife for sustainable development of the country. Our writers are willing to hear from you about their writings and your expectations from us to write on in future.

Veterinarians in worldwide are celebrating World Veterinary Day on 30th April 2022 and Sri Lanka Veterinary Association is also conducting several events on that day for benefit of the animals and public. Animal welfare bill is at final stage of implementation for the protection of animals. There are many more developments happening for the
benefit of the animals and the animal owners in the country. You can convey your thoughts and views about the animal related issues with respect to the veterinary profession to the Sri Lanka Veterinary Association which is the professional body of veterinarians in Sri Lanka.

This volume contains number of interesting articles on Pet, farm and wild animals, nutrition \& public health and animal welfare also. There are articles in all three languages Sinhala, English \& Tamil for the benefit of readers in different languages. Please do not hesitate to contact us if you have any comments, suggestions, feedback or any information about purchasing magazine via below contact details.

We are improving the content of the magazine based on your feedback.

Thank you for being with us.
Dr. Suneth Disnaka
Chief Editor
Your Veterinarian Magazine
Email : disnaka.vs.nldb@gmail.com
Address : SLVA Office, 275/75, OPA Building, Prof. Stanley Wijesundara Mw, Colombo 7.

## Write to SLVA;

Dr. Chamari Kannangara, Hon. Secretary, SLVA - secretary@slva.org / infor@slva.org Call us,
Mrs. Nayana Fernando, Office Assistant, SLVA - for purchasing magazines 0702741145
$74^{\text {th }}$ Executive Committee of SLVA


## BENEFITS OF ASSOCIATING

Being social animals we, the humans are naturally inclined to companionship. This may be the reason why majority of people not only want to associate with fellow humans but also adopt animals as pets to interact with. It is needless to say that the relationship between a pet and the owner is mutually beneficial. It is proven that human-animal interactions, in other words owning a pet can have positive effects on one's overall mental and physical wellbeing.

Anthrozoology, the study of the interaction between humans and other animals has been expanded over the last few decades. The research done in this discipline has proven that owning a pet could lead to lower the stress hormone cortisol, while the social interaction between people and their pets especially dogs, actually increases levels of oxytocin, $\beta$ endorphins and dopamine, the neurochemicals associated with positive feelings and bonding in people.

The pets usually demand their owners to stay active as they require exercise in the form of walks or rides, need attention, play time, baths, and overall care. The activities involved with pets provide social support by mingling with other people and help one to stay physically fit and alert. It has been shown that associating with pets prevent or reduce chances of certain health issues such as Autism in children, Alzheimer's disease and

Dementia in adults and elderly, Post Traumatic Stress Disorders (PTSD), Attention Deficit Hyperactivity Disorder (ADHD), depression and anxiety in individuals of all age groups. This is possible because pets provide their owner with unconditional love, comfort and humor which have positive impact on mental health.

There are studies to prove that owning pets is beneficial for mental and physical wellbeing of children, when the appropriate precautions are taken. When children have friendly relationship with their pets, they grow up happily and actively with something to look forward to ever day. The companionship with pets causes psychological stimulation, improves behavior, enhances better understanding of needs and feelings of others hence, promotes empathy and learning responsibilities and lowers anxiety levels. Bringing up of a pet is a learning exercise for small children and it will arouse curiosity related to their growth, habits, behavior etc.

## Animal Assisted Therapy (AAT) or Pet Therapy

Animal assisted therapy or pet therapy is the use of animals as method of helping human patients cope with and recover from certain physical and mental health conditions. Various animals, including professionally trained dogs, horses and birds are used for AAT. Depending on the objective of the therapy and the preference of the person, any species of animal may be used to interact with patients. Animal
assisted therapy is not the sole therapeutic modality in most cases, but is a type of complementary preferred by some patients. It should be highlighted that the AAT does help but does not replace other specific treatment modalities. Animals may be able to provide comfort, alert others if care seeker is in danger, or even perform direct actions to help a patient when needed.

Animal assisted therapy has built on a concept called the human-animal bond which refers to people's desire to interact with and relate to animals. Many people can form a bond by interacting with animals and this bond can result in a calming effect in them. It has been shown that this bond may help a person especially elderly in several ways such as, reducing boredom, increasing movement and activity through walks and play, providing companionship and decreasing loneliness, increasing social interactions, improving mood, reducing heart rate, blood pressure and general wellbeing.

The process of animal therapy requires a trained animal handler, who is usually the owner, maneuvering the animal at each therapy session. The handler will work under the guidance of a medical practitioner who is conversant with AAT to help the patient achieve the goals of the therapy in the medical/clinical setting. In many developed countries a number of organizations train handlers and connect them with healthcare providers. Before getting approval for use for therapy, both the animal and the handler have to go through various tests and obtain certifications with these special groups and organizations. Sri Lanka is yet to adopt AAT as a supplementary therapeutic modality and it could be envisaged that there is a protentional to initiate and pursue it in future.

# : wioce CAT' Dr. Sylvia Mary Wijayarathna 

Domestic short hair cats, or as commonly referred to in Sri Lanka, "regular cats", are the most common kind of cats living in domestic households, worldwide. The main characteristic that most cat-lovers seem to take into consideration before adopting a cat is the color of their fur coat. More ardent cat fans, even take to owning a cat each in every coat color! Ginger cats, Tabby cats, Calico Cats, Tortoiseshell cats, and Tuxedo Cats are a few types of cats categorized according to their coat color and pattern. The Tabby coat pattern is based on the Agouti gene, or the natural "wild" gene, a relic of their ancestor, Felis silvestris or Felis lybica; and has many sub varieties of it's own.

Did you know that there are certain predictions that could be made based on the color and pattern of a cat's coat?

## 1. Pure white cats have a higher chance of being deaf.

Although it's inherent nature of cats to pretend to be deaf when spoken to, white cats may actually happen to be deaf. The chances of being deaf will increase if the white cat also has blue eyes. In instances where the cat's eyes are of two different colors (Heterochromia Iridum), there's a high possibility that the ear on the same side as the blue eye, would be deaf. Therefore, it's imperative to take steps

to protect such cats from dangers that may befall upon them as a consequence of their deafness.

## 2. Most ginger cats are male (80\% of them).

The 'ginger gene', which attributes to an orange colored fur coat, is carried on the X chromosome. As females bear two X chromosomes, both X chromosomes should bear the 'ginger gene' in order for a female to be ginger; whereas in males, the only $X$ chromosome that they bear, carrying the above gene, is sufficient to produce an orange colored coat.

## 3. Calico cats and Tortoiseshell cats are female.

The ginger gene as well as the gene that encodes black pigmentation in a cat's coat, is located on the $X$ chromosome. Thus, in order for a cat to bear both these colors simultaneously, it needs to have a pair of $X$ chromosomes. Hence 99.4 \% of cats, bearing these two colors simultaneously, are females. Rarely, cats that bear an XXY Chromosome pattern may also possess a Calico or Tortoiseshell coat pattern, together with external male genital organs.

## 4. Personalities associated with coat color.

A study conducted by the California Davis University, states that in certain

instances, a cat's personality could be predicted according to its coat color. As stated by this study, ginger cats and bi colored cats, were found to be of a friendly disposition; while calico cats, black cats and white cats, were said to be of a more shy and reserved nature.

Do not judge a book by its cover, but do judge a cat by its color!

## NUTRITION $\gg$


































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## One health, One-welfare for Societal Benefits

Dr. M.ljas


Human welfare, social welfare, and animal welfare have conventionally been seen as separate disciplines. Human welfare deals with the mental state of individuals, social welfare deals with the balance of welfare across societies and generations, and animal welfare deals with the physical and mental well-being of the animal species such as pets, and farm animals. The separation between human, social, and animal welfare is an artificial compartmentalization, yet above three disciplines depend on the same set of scientific measures and heavily interconnected on each other in an ecological perspective.

## What is One Health, One Welfare?

One Health, One Welfare is an innovative thought which extends the existing and widely accepted 'One health' concept. Many health policies are traditionally focused on animal and human health threats like zoonoses, yet contemporary research advocates that welfare should include the psychosocial benefits of human and animal relationships. Welfare is defined as both the health and extends to the happiness of a group.

One Welfare' is the idea that animal welfare depends on and influences human welfare and environmental sustainability. The notion of one welfare believes mental health as well as physical health and is thus an extension of the One Health concept. In effect, this concept asks for veterinarians and allied animal services and animal's owner, environmental scientists, social scientists, and human health services to cooperate and share expertise to care for the welfare of both animals and people.The idea of One Welfare relates the interconnectedness between animal welfare, human wellbeing, and the environment. The one-welfare concept

could eventually help to improve standards of both human wellbeing and animal welfare. It could also help in ensuring food security, reducing human suffering (eg, abuse of vulnerable people), and improving productivity within the farming sector through a better understanding of the value of high welfare standards. It spreads the approach of (and overlaps) the One Health idea applied for human and animal health. A One Welfare approach promotes the direct and indirect links of animal welfare to human welfare and environmentally friendly animal-keeping systems. It could provide a means to improve animal welfare and human wellbeing.

## Stray Dog Issue from Onewelfare Perspective.

'The stray dog issue' is the collective elucidation of 1 ). the mass population


Illustrations of areas that fall under the umbrella of One Welfare.
growth of unowned, 2).unvaccinated and 3)unsterilised street dogs. Authorities collaborating with animal welfare organisations in the community to directly tackle these three fundamental welfare issues. As street dogs, the majority also tend to be undernourished, dehydrated, and have a heap of diseases. Others may have also been in fights, hit by cars or faced psychological/physical abuse at the hands of unwelcoming citizens.

Overpopulation and abuse of dogs has a profound negative effect upon their sentience and consequently their wellbeing. Inappropriate handling of animals can also cause a response of aggression which leads to attacks on
humans and chronic fear within communities, hindering human welfare. If animal handling is addressed correctly, there should be a symmetry in the human-animal relationships in which humans, as the more advanced being, should lead by practicing respectful and caring behaviour towards animals.
It is recognised that due to uncontrollable populations of dogs and lack of education in developing countries, one welfare concept is not always feasible. Therefore, government agencies should provide education and legislation for responsible dog ownership, reproductive control, and identification of dogs. The dog problem is therefore essentially a human issue and without measures in place to control it, 'One health, One Welfare' may never be achieved.

## Dog Population Management

The concept of 'One Health, one welfare' is a fundamental principle that we, as humans, treat animals well, we too will benefit. For an example implementing responsible dog/pet ownership, vaccination and sterilisation programmes will ensure both aspects of human welfare and animal welfare.

One-welfare based dog population management would not only reduce the number of stray dogs on the street, reduce public fear due to religious beliefs, reduce the risk of rabies transmission and infection amongst the dog population and therefore also protect the dogs' welfare. Investment in preventative methods is fully beneficial for Sri Lankan economy for expenditure on post-exposure prophylaxis (PEP) vaccinations, could save the country's millions of money. Which, as a developing country, would also be highly beneficial in allowing the government to focus on other sustainable development goals.

## 'One welfare' encourages

 'engagement and communication among stakeholders to implement the OIE's (Organization of World Animal Health) basic animal welfare standards of which Sri Lanka is a member and the use of culling of stray dog is unacceptable due to the cultural sentiments, mental and personal satisfaction from helping another species, which cannot defend itself.The OIE adopted the 'five freedoms' in

1965 which includes that animals should be free from Pain, fear and distress. The World Animal Protection (2014) organisation also recommends applying a 'one health' perspective in which agencies should work together to achieve 'the best possible health for people, animals and the environment.' The culling of dogs often involves painful methods of death such as poisoning and gassing. It is in this sense that the welfare and health of dogs and humans, who often witness these atrocities, are compromised. Therefore, not only it is proven that the culling of dogs is an unsuccessful measure taken in reducing dog populations and rabies cases, but it also compromises basic animal welfare standards that Sri Lanka should be adhering as a member state of the OIE.

## Application of One-welfare Concept in Rabies Control

It must be emphasized that Sri Lanka does have acceptable policies to control rabies in terms of practicality and ethics. For examples, extensive vaccination campaigns were done in the city of Colombo and the whole country since 1950 s and 1975, respectively. And from 2006 dog population management is practiced in Sri Lanka through Trap, Neuter, and release (TNR) schemes. However, these schemes are hard to maintain due to several factors, such as lack of data on dog population of Sri Lanka where exact populations and the number of dogs distributed across the country is unknown. Moreover, Rabies Ordinance requires vaccination of dogs yet with no legal sanctions in place, if a dog is found to be unvaccinated; hence there is no control over vaccinations and responsible dog ownership. Furthermore, dog population control is simply a 'complementary measure' in rabies control and 'does not directly affect the transmissibility rate.' This supports a wider consensus in the literature that vaccination of the dog population, by at least 70\% (WHO 2013), is the most effective rabies prevention method. Therefore, TNR schemes are vital in collecting data and managing and reducing dog populations so that animal health and wellbeing can be improved, due to the reduction in dog fights and the increased likelihood of dogs receiving medical attention. It also benefits the human population for fewer dogs may reduce fear associated with dog attacks and risk of rabies.

All rabies prevention methods have potential pitfalls, but as the literature agrees, mass vaccination is vital in securing 'One health' and 'One welfare' for both the human and canine populations. Therefore, this is where
investments from stakeholders should be concentrated, rather than in the culling and slaughter of dogs which has been considered as in-humane, unjustifiable violence on the animal population in Sri Lankan context.
World Organisation for Animal Health (OIE) has strict guidelines on its stance on animal welfare in which indiscriminate culling is unacceptable. Combining current policies such as Dog population management,

including responsible dog ownership with mass vaccination programmes could lead Sri Lanka to the same successes as Latin America.

Within the 'One Health, one welfare' framework organisations from different areas that engaged in rabies control must act collaboratively on the epidemic as 'One'. With no current governmental legislation on responsible dog ownership or legal sanctions on an unvaccinated canine pet, government should be pushing public cooperation into becoming a rabies free nation by implementing such laws. Furthermore, education on responsible dog ownership and the risk of rabies should be introduced to schools and communities in rural areas as much as those in the cities, this again allows for a 'One health, One- Welfare approach due to a collaborative understanding on the dangers of rabies. Those situated in rural areas may then take more of an active approach into investing in preventative methods, which benefit animals and public.

## One Welfare as a key to Control Pandemics

It is widely observed that people can be quick to blame animals for zoonotic disease transmission, yet if we were to closely look at the root causes for pandemics, followings are attributed to zoonotic disease transmission: human behaviours, such as habitat destruction, overcrowding of animals in factory farms, mixing of distinct species in markets and an appetite for global travel. We have seen in the medical profession that animals are considered as "risks" to humans, but rarely the other way around. However, we need to recognise that "what is
good for non-humans and earth is virtually always in the best interests of humans, given the profound interconnectedness of all life." Certainly, we benefit from the preservation of ecosystems and the maintenance of the planet's biodiversity. This is argued in the concept of "One Welfare," which recognises the interconnectedness of animal welfare, human wellbeing, and environmental sustainability. Instead of looking for simply to manage risks posed by animals to humans, a 'One Welfare' system seeks to improve the welfare of all forms of life on earth. One Welfare locates humans within the nature/ecosystem. It recognises that the risks of zoonotic disease transmission can be reduced by preserving habitats or caring for animals in an appropriate, sustainable environment, ensuring appropriate animal husbandry, health, and welfare. Importantly, it recognises that the health and welfare of those working with animals is also a matter of importance.

## Key message from One welfare concept

One welfare concept argues that instead of exploiting the nature and animals for humans' benefit, we should live within the nature and considered ourselves as a part of it. The modern form of animal welfare knowledge is considerable enough for the One Welfare concept to stand by itself; but a unified approach is better to extend competence and improvements. A concerted attempt to much wider spreading of the benefits that animal welfare brings to wider society and the use of One Welfare concept, along with One Health, will promote the collaboration.

Veterinarians have a substantial role to play to promote One Welfare concept. It is customary that to improve animal welfare we need to influence human behaviour and even individual veterinarians can have a big effect. I believe that society has developed a greater understanding of the relationship between animal welfare, human well-being, and the environment because of the Covid 19 pandemic. In fact, it seemed fitting to embrace the notion of One Welfare at this time in history.


# WILDLIFE $\gg$ Animals in Conflict with Humans in Sri Lanka 

## Prof. Ashoka Dangolla

## General

In Sri Lanka, animals and plants have faced several issues of survival due to exponentially reducing land, food and resource availability, increasing human population and their needs. The competition for survival among animal species has increased and situation has been made worse due to various developmental projects with inadequate attention on biodiversity. Jungle fragmentation, river diversion and new road ways have created severe threat to wild animal survival. Imbalance among animal species has reduced numbers and spectrum of pray species, while some have even disappeared. Extensive at times mandatory use of insecticide, pesticide and chemical fertilizer in agricultural work, have negatively impacted the eco systems. For example, levels of heavy metals in sediments in lagoons and also on land within Bundala wetland Ramsar site, is astonishing. This is due to Kirindi oya river diversion and human settlements through which agricultural water is diverted into sea via the lagoon system. Resulting reduction in numbers and spectrum of migratory birds has seriously disturbed biodiversity within the Bundala national park.

Those who face conflict with animals adopt ad hoc or conventional methods of early detection of approaching wild animals and to repel or deter them while population control or management of such animals is not discussed much. New trend of rearing wild animals as pets could make this situation worse and certainly will pause a serious knowledge demand from prospective veterinarians. Some of such wild animals such as monkeys have been captured, tamed and trained to perform various tricks for pleasure which are later released at large for various reasons. These animals would essentially create problems for people. Anyway, habituation by various wild animals, especially primates (particularly monkeys) have become a serious public health concern.

## Wild elephants

Current 5000-6000 wild elephants face serious threats of survival from which human elephant conflict (HEC) has been the result. About 200 elephants and 90 people get killed annually due to HEC
 etc. have been conventionally used as elephant repellents. Fences erected with wire lines onto which empty bottles and tins are hanged, so that an approaching rogue elephant would entangle eliciting sound provide an early warning system. The wildlife state workers assigned to mitigate such conflicts have not been given all logistics and hence would reach locations of conflict much later after it has taken place. Solar operated electric fence erected around the elephant rich jungle patches with and without trenches, has been the solution adopted by the state for several decades. In addition to many technical and management faults of such fences such as undergrowth, weak poles etc., elephants have been found on both sides of such fences. There have been situations where elephant corridors have been occupied by people and at times, electric fences have been erected across such corridors. Confinement of people and property rather than limiting elephant movements to jungles, have been found to be successful in this regard. Maintenance of electric fences become the direct responsibility of the villagers there, which is easier done with better accountability rather than someone who is paid by state to do the job.

## Captive elephants

About 100 captive elephants are owned by individuals and temples to address cultural, religious and state needs. Currently, most captive elephants do not work. The unique Sri Lankan culture in which captive elephants play a prominent role, attracts local and foreign tourists and therefore, is a foreign currency earner. Such elephants, have been captured wild, if not captive born, must be broken and then trained for obedience. Fire, noise and many people around, all of which are used to chase wild elephants away
must be used in such breaking and training. Regulations and laws on such breaking, training and welfare must be introduced and strictly implemented as well in this regard. These require experienced hands, legal infrastructure and attention towards captive elephant welfare. Most of these, has been traditionally happening and no formal or proper scientific training has been structured and given to any elephant keeper in Sri Lanka until few training programs conducted by us for elephant keepers at Pinnawela elephant orphanage. Captive elephant keepers are known to have unhealthy life habits while the situation with regard to government elephant keepers is not that bad.

## Monkeys

Red faced monkey (toque macaques/Macaca sinica) is the commonest culprit. In Kandy, there were few individual monkeys who possibly had been tamed and later released at large by people. Such monkeys are not or less scared of people, specially of children and women and cause nuisance and disturbed daily human life. All of them were captured, surgically operated to prevent breeding and were translocated. The troupes of trouble making monkeys can have 20-60 individuals. Among the traditional monkey repelling methods, catapults, use of chillie, fire, scaring them using other larger animals, animal skins, scare crows, shouting, lighting fire crackers and even killing one of them have been in practice. Shaving hair and making them disfigured, help according to some individuals. Some monkey repellants namely, dogs dressed as leopards and secondly people dressed as strange large monkeys with masks and long raincoats indicated that both are effective, but for a short period. However, application of leopard feces (a predator) on fruit trees during fruit season appear to be effective. Unfortunately monkeys, being primates and genetically close relatives of humans, rapidly learn to adapt to all these methods. Using an electrically operated sound emitting device, such as in India has been tried with mixed results, and we are working on its modifications. Application of leopard faeces on fruit trees, resulted in temporarily and satisfactorily repelling monkeys during the fruit seasons. However, behavior of monkeys could be different and repelling methods may not work all over for extended periods which may depend on the degree of their habituation.


Monkey translocation has been strictly refused due to possible gene mixing. An immense public support is required for trouble making monkey capture while the approval from Department of Wildlife Conservation is essential. Open surgery, either castration or vasectomy for males and ovariohysterectomy for females can be done for population control, though the impact of operating males can be questionable since all males can potentially mate with females. General public do not like to see monkeys being operated, bleeding and disturbing the surgical wounds which is prohibitively discouraging. Only solution to this situation is laparoscopic surgery in which open wounds are minute and post operative care is almost nil. Monkeys carry at least 4 types of helminth eggs and one bacterial species in their fecal matter while some have suspected them to be carriers for Dengue causing virus. Human behavior, attitudes and methods of garbage disposal must be primarily looked into in this regard, if monkey habituation is to be discouraged.

## Wild boar

In Yatinuwara divisional secretariat area, a study with the help of Ministry of Land Use, showed 11 different species of wild animals in conflict with people. Wild boar was the most frequent, while the torque macaque, Indian porcupine and bandicoot rats followed. Indian muntjac, giant squirrel, giant flying squirrel, black naped hare, indian breasted munia, Indian pea fowl and fruit bats were also reported at a lesser frequency. Monthly estimated loss per person was less than Rs. 2000 by majority while two respondents loose over Rs 10,000 a month. A fair number of respondents have even abandoned agricultural land while some even keep air rifles to shoot such animals. Currently, law has been relaxed so that wild boar, if get into a private home garden, can be killed and meat can be consumed.

## Squirrels

Flying squirrels are a seasonal problem to most fruit farmers and Kandyan forest gardens. The conventional squirrel repelling methods injure such animals badly at times and even could kill.
Destruction caused to many crops including coconut by giant squirrels is well known. The fruit harvest is seriously reduced due to this and in some places the farmers are facilitated to purchase shot guns at a nominal fee to shoot such squirrels. The house squirrel is destructive and would eat and destroy almost anything for food and to build their nests within and outside houses. There is no study on the squirrel conflict to quantify the impact and the losses though some kids like to rear house squirrels as pets. We must not forget that the Medical Research Institute
has found squirrels to be carrying rabies virus, which is an essential killer of all warm blooded animals including man.

## Crocodile

Most reports on crocodiles attacking people have been from the Nilvala river. Several studies have been conducted in this regard while a few habitual killer crocodiles also have been identified. Fishermen and unsafe and unprotected users of the river have been subjected to life threats and injuries caused by such crocodiles. Department of Wildlife Conservation and the veterinary surgeons attempt to settle many such crocodile conflict issues.

## Turtles

Sri Lankan coastal area is blessed with frequent visits from all 5 species of sea turtles periodically. Turtle watching is a popular tourist event, and turtle hatcheries is an established livelihood in southern Sri Lanka. There had been commendably organized and systematic approach to prevent turtle egg poaching in that area, as well. Turtle get accidentally caught into fishing nets (by catch) which seriously reduces the fish catch and make it difficult by fishermen to manure the nets. Therefore, fishermen cut the flippers off of the turtles to reduce economic losses. We have tried to surgically correct such injured turtles but increasing awareness and preventing such injuries is more important than such surgical correction.

## Leopard

Leopard, a protected animal, is being purposely trapped or they get caught to traps or snares set for other animals.
These traps are set by people who are affected by such rogue leopards. Leopards get attracted to eat dogs in garbage dumps and goats and calves are also their prey. More than 20 such leopards have been killed by people last year and the Department of Wildlife Conservation does an admirable work load in preventing such losses to the nature.

## Peacock

Peacock being a sacred animal and a predator of snakes, mostly found in dry zone, is now found even in the wet and intermediate zones. Its predators are being disturbed due to various reasons which could possibly include heavy use of chemicals, fertilizer, pesticides and weedicides in agricultural work. Peacock eats and destroys almost everything in a farming land, a scavenger but we lack data in this regard. To make it worse, due to cultural belief of peacock being a god Skanda's
(Kataragama) vehicle, people do not take action against them either. However, the rat, which is the vehicle of god Ganesh (god for wisdom; Skanda s brother), is being trapped and killed!

## Venomous snakes

Five lethally venomous snakes have been identified in Sri Lanka, though there are many more species that are semi or nonvenomous. Over a 100 people annually die due to snake bites and several thousands get bitten, despite heavy use of antivenin imported from India. It is known that the Indian snakes are genetically different to Sri Lankan snakes and such treatment with Indian antivenom therefore does not totally cure a victim. Most snakes are killed by public due to the inability to identify them as non-venomous. Electronic repellent devices which are widely sold and are popular, work reasonably well on reptiles and birds but not on mammals.

## Competitors for survival

Some species of fish, though are not dangerous to humans, are dangerous to survival of other species of animals in water. Mosquito fish, cat fish, gourami, knifefish, tilapia, carp and trout are among them. Some species of slugs and snails are also in this list. Slider turtles and rats are also increasingly becoming an issue.

## Dangerous animals in sea

At least 10 species of animals living in the sea can be lethal to humans and to other animals. Puffer fish, stone fish, octopus, lion fish, white and tiger sharks, stingray, jelly fish and barracuda fish are among them. Except the sharks, all other animals listed above have been reported from Indian ocean around Sri Lanka.

## Bees, wasps and Tarantula

Bees and wasps at times of agitation sting people, wasps being worse can even be lethal. Bees though an income earner via honey, must be managed and handled with care. However, more than $50 \%$ of Sri Lankan bee honey requirement is imported. Stings by Tarantula spiders could be lethal and they have been reported in Sri Lanka.


# "The Sound of Freedom Blown With the Wind" 

## Nature bestowed freedom to free-ranging wild animals during the Pandemic Are you Heeding?

## Professor Emeritus Indira Nanayakkara Silva

During the global Covid-19 pandemic caused by SARS-CoV-2 virus, the Nature thrived to clean up the environment in the air, land and sea. The pandemic situation restored the ecological system significantly by improving air quality in cities across the world, reducing Green House Gas emissions, lessening water pollution and noise, and reducing the pressure on the tourist destinations. The air pollution intensified the pandemic, but the pandemic cleaned the skies. The lockdown halted the air pollution with carbon and other small particles, such as PM2.5 and nitrogen dioxide, emitted by fuel combustion by aircrafts, industries, vehicles, and domestic boilers.

The lockdown helped to reduce the water pollution load from major industrial sources. The pH , dissolved oxygen, biochemical oxygen demand and total coliform count of the river Ganga in India was found within the water quality standard of India. The Grand Canal of Italy turned clear, and many aquatic species had reappeared. The water in lakes and rivers turned clear due to reduction in the movement of merchant ships and other vessels thereby reducing emission as well as marine pollution.

During the lockdown, city dwellers were able to enjoy the chirping of birds. Anthropogenic noise pollution (from people, vehicles, trains, etc.) has adverse impacts on wildlife through the changing balance in predator and prey detection and avoidance. Unwanted noises also negatively affect invertebrates that help to control environmental processes which are vital for the balance of the ecosystem.

Another important contribution from nature was giving wild animals that were not in captivity the freedom to express their normal and natural behavior, which is one of the five Freedoms globally recognized as the gold standard in animal welfare (the other four freedoms are: freedom from hunger and thirst; freedom from discomfort; and freedom from pain, injury, and disease). Global travel restrictions of humans during the pandemic, created a dramatic impact on free-ranging animals, giving them the freedom to express their speciesspecific natural behavior. They confidentially roamed into empty streets and highways and enjoyed nature reserves and parks all to themselves. The streets that were usually bustling with humans became deserted allowing wild animals to roam free, while humans self-isolated.

The freedom to wander during the lockdown was mostly enjoyed by wild animals in national parks that were seen "running wild" in urban areas enjoying their new-found roaming ranges. A herd of Kashmir goats invaded the streets in a Welsh seaside resort in Llandudno, helping themselves to garden flowers and hedges. Wild boars strolled through the deserted streets of Barcelona in Spain. Hedgehogs were seeing enjoying vehicle-free roads in the UK. Herds of deer were seen roaming the silent streets nearby Japan's tranquil Nara Park and also in the streets of Haridwar in Nothern India. Pythons and other snakes were seen freely slithering across. The banks of the Bosphorus, the natural narrow waterway in Turkey which is one of the world's busiest marine routes, had Dolphins confidentially swimming. More fish, ducks and dolphins have been reported in the empty canals of usually tourist-clogged Venice, Italy. Moreover, the canals were filled with crystal clear waters due to the absence of boats which usually churn sediment to the surface. A herd of 30 Dugongs, also known as sea cows, was seen swimming in the Hat Chao Mai National Park in Thailand.

The wildlife parks that closed during the lockdown, animals were seen roaming freely within the parks too, since their

movements were not blocked by the traffic caused by safari vehicles. Unfortunately, this freedom was shortlived for some animals as reported recently of a jeep driver that harassed a baby elephant on the TrincomaleeHabarana road in Sri Lanka, a road that was gazetted in 1938 as a prohibition on wildlife crimes under the Fauna and Flora Protection Ordinance. A TikTok video, posted by a user exposed how Instead of waiting for the animal to pass, the driver charged towards it in a teasing manner shining the vehicle's strong headlights at it, and kept driving towards it even as the terrified elephant kept trumpeting in distress and seeking refuge behind a tree. The driver was arrested by wildlife officials and was fined by Kekirawa Magistrate's Court.
Conversely, the sense of less noise and search for new places to find food had led some animals to get lost. Several cougars were found wandering the streets of Santiago, Chile and one was even found inside an apartment complex. A leopard relaxing on the roadside leading up to Wilpattu National Park in Sri Lanka was captured on camera during the COVID-19 lockdown.

A negative impact of closed wildlife parks and human absence in nature reserves may have caused the habitats of wild animals overtaken by invasive species, and the threat of illegal hunting of endangered animals for bushmeat and wildlife trafficking. Movement of people within the parks was a deterrent to poachers. Many people moving back to their homes during the lockdown, some after losing their jobs, resulting in sudden increases in the numbers of occupants in households could have led to food shortages which may have made people in bordering villages to hunt animals in wildlife parks. Such activities sometimes resulted in wild animals getting trapped in snares, as in the case of endangered black panthers in recent times in Sri Lanka. The spotted deer and porcupines were the most poached animals. In Africa, animals were hunted not only for bushmeat but also for other commodities such as rhino horns. The Department of Wildlife Conservation in Sri Lanka enhanced its anti-poaching activities and deployed wildlife field officers on antipoaching activities. Sadly, a wildlife officer on duty was shot dead by a group of hunters inside Gal Oya National Park on April 23rd 2020.

In June 2021 the Sri Lankan wildlife officials, on a tip-off has prevented an attempt to catch a wild baby elephant

from the Minneriya National park, by two vehicles accessing the main road bordering the buffer zone of the park. The 8,889-hectare Minneriya National Park, in the North Central Province in Sri Lanka, is the location of a unique world event dubbed 'The Gathering' where more than 300 wild elephants gather to feast on the tender grass which shoot up as the waters recede just before the dry season on the Minneriya tank-bed.

The lock-down had provided opportunities for wild animals to expand their populations. In Albania the numbers of pink flamingos had increased by a third. A massive spike was seen in the number of baby Olive Ridley sea turtles in the empty beaches of India.

The Global travel restrictions during the lock-down helped to decrease the number of road-kills. The fall in traffic in the USA had caused a $58 \%$ drop in fatal collisions with deer, elk, moose, bears, mountain lions, and other large wild animals, as well as a drop in deaths of dogs, sheep, and other domestic animals. An international consortium, "COVID-19 Bio-Logging Initiative" was formed to study the extent to which human mobility affects the movements, behavior and stress levels of wildlife, before, during and after Covid-19 lockdown using data collected with animal-attached electronic devices called "bio-loggers".

However, the fate was different to animals that depended on humans for survival, such as pigeons, who were risking starvation during COVID-19 lockdown due to a food scarcity. Animals, that usually lived in human communities and got fed or picked
morsels of food on the streets, such as stray dogs and cats suffered due to food shortage resulting from closed restaurants, one of their main food sources. Rival gangs of monkeys were seen fighting over food in Lopburi, Thailand. A Red kite (a medium-large bird of prey in the family Accipitridae, similar to an eagle, "Rathu Piyakussa" in Sinhala) another opportunist making the most of human activities was seen in the Meltham Wildlife Reserve in West Yorkshire, both underweight and incapable of feeding itself.

In Sri Lanka, the elephants Gemunu, Nandimithra and Arjuna at Yala National Park had developed a taste for human food offered by visitors, in spite of repeated warnings not to feed wild animals. Rambo and a herd of about 20 elephants in Udawalawe National Park had a habit of halting safari jeeps seeking food from humans. Elephants along the Buttala-Wellawaya road near the Yala park boundary are also used to be fed by the public. Such innocent habits created by unconcerned visitors were abruptly stopped due to the closing of the Parks during the pandemic and those poor elephants had to return to their former method of exploring long ranges for food.

Coordinated global wildlife research during periods of crisis will provide unforeseen opportunities for humans to build a mutually beneficial coexistence with other species. The Guardian Newspaper of 30 June 2020 wrote:
"We've never had a better chance to make a greener world. Covid-19 has delivered unusual environmental benefits: cleaner air, lower carbon emissions, a respite for wildlife. Now the big question is whether we can capitalize on this moment."

## WILDLIFE $\rightarrow>$

## The first experience of hydrotherapy for llions

in Sri Lanka

## Dr. Priyasad Ediriwarne

The Ridiyasama Safari is the one and only open safari under ex-situ conservation established recently in Sri Lanka where animal are kept in open free environment and visitors are traveling in covered vehicles to see animals. Animals are given ample amount of freedom to enjoy the large extent of natural forest and behave like in a natural habits.

This safari has several dedicated areas for different animal species. There is a veterinary hospital in the safari where veterinarians are employed to look after their health, breeding and nutritional requirements. It is not uncommon to come across different types of emergency health conditions in this safari due to various reason in some occasions.

One day in January 2020, a Lion Zone employee called our hospital and stated that a lion named Wolly had fallen unconscious in the open area of the zone.

Dr. Shashimal and the hospital staff who were on duty at that moment immediately approached Wolly and observed that he had been severely beaten by another lion.

He was immediately rushed to the treatment unit where he was found to be recovering well after the initial treatment.

But it was observed that he was unable

We concluded that the nerve compression in the lumbar region and severely injured stifle joint of the left hind leg might be the causes for this.

First we wanted to keep him alive somehow.

There we informed Dr. Rajapaksa, Director of Health and Nutrition of the Department and obtained relevant advices.

He continued to receive the Specific, Symptomatic and Supportive treatments he needed and was assigned a staff to study and report on the nature of the symptoms and the care he needed.

After a few weeks of treatment, he was able to walk on three legs, which was a great achievement for us.
But he was unable to walk and was only able to jump with one hind leg raised.

We did not give up and sought expert advice in this regard.

It was stated that even if an attempt is made to correct this condition through surgery, post operative care should be intensified otherwise complications may occur later.

So I decided to start a hydro therapy which I studied and created a separate section and a pool in it.
We were able to build it through our


gardeners according to his size.
But at first, He was reluctant to go into the water.
We had to work hard for a few weeks for this.
He began to walk across the pool as a result of the efforts made to encourage him in various ways day and night.

This relieved him of the fear of walking using his disabled foot.

About 36months after, he was able to not only walk four feet but also rise to a higher elevation.
Our efforts over a year and a half were successful and Wolly, who was born in our safari garden and grew up here, was fortunate enough to live with our family for a long time.

Special thanks - Indika saman (Animal keeper) Supporting me to complete this.
 Dr. Oswin Perera (BVSc Ceylon, PhD Glasgow, FSLCVS) is a retired Professor of Farm Animal Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya. Previously, he worked for the United Nations at the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture in Vienna, Austria. His teaching and research were focused on reproduction of cattle, buffaloes and elephants, human - wildlife conflicts, and risks from zoonotic diseases. He was Cattle, buffaloes and elephants, human - wildlife conflicts, and risks from zoonotic diseases. He was
the Founder President of the Sri Lanka College of Veterinary Surgeons, past Presidents of the Sri Lanka Veterinary Association and the Veterinary Alumni Association of Peradeniya. His hobbies include travel, hiking and wildlife photography.

## A Selection of

## 'Feline Friends' Captured through the Lens of a 'Large Animal Vet'



African Lion (Panthera leo leo) male @ Savute NP, Botswana
Lions are the apex predators in Africa and are a keystone species. They play a crucial role in keeping a healthy balance of numbers among other animals, especially herbivores, and therefore have a positive influence on wildife habitats and the environment.


Asiatic Lion (Panthera leo persica) male @ Sasan Gir NP, India
The male Asiatic lion has a relatively shorter and sparser mane compared to the fuller mane of the African lion. Both males and females have a longitudinal fold of skin that runs along their belly, which is a distinguishing characteristic.


African Lion (Panthera leo leo) female @ Hwange NP, Zimbabwe
They were spread across the entire African continent in the past but are now restricted to sub-Saharan Africa.
With less than 20,000 individuals left in the wild, the species is listed as 'Vulnerable' on the IUCN Red List.


Asiatic Lion (Panthera leo persica) female
(a) Sasan Gir NP, India

In the past they ranged from Turkey to India, but are now present in the wild only in Gir National Park, Gujarat, India. Conservation efforts by the Indian Government has resulted in the population rising from around 180 individuals in 1974 to 650 at the last census in 2017. It is listed as 'Endangered' on the IUCN Red List.


Bengal Tiger (Panthera tigris tigris) @ Nagarhole NP, India
The largest living cat species, there are five subspecies at present: Bengal, Indo-Chinese, South China, Amur, and Sumatran tigers. According to the tiger census report of 2019 there are around 3,000 Bengal tigers in India, and the subspecies is listed as 'Endangered' on the IUCN Red List.


African Leopard (Panthera pardus pardus) @ Kruger NP, South Africa
The nominate subspecies of the leopard, it is present in a wide range of habitats. The Cat Specialist Group of IUCN recognizes eight subspecies of leopards: African, Indian, Javan, Arabian, Persian, Amur, Indochinese and Sri Lankan.
Estimates place the population of African leopards at around 700,000 animals.


Sri Lankan Leopard (Panthera pardus kotiya) female (a) Wilpattu NP

Their survival is primarily threatened by habitat loss and fragmentation, and recently there has also been an increasing risk of human-induced mortality. There were around 22 deaths reported
during 2020 and 2021, with the majority due to wire snares set by people for catching other species, while some were due to poisoning or poaching for skins and canines.


Cheetah (Acinonyx jubatus)
@ Hwange NP, Zimbabwe
Native to Africa and central Iran
it is the fastest land animal, capable of running at 80 to $120 \mathrm{~km} / \mathrm{h}$. They are now distributed mainly in small, fragmented populations and in 2016 the population was estimated at around 7,100 individuals in the wild. It is listed as 'Vulnerable' on the IUCN Red List.



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## கன்னிப்பசுஉ(ுுவாக்கமும் டுகா மைத்துவமும

Dr. (Mrs).Thavamalar Gohulathaash
இலங் கையில் பால் உற்பத் தியை அதிகரிக்கும் பொாுட்டு உள்நாட்டில் கலப்பின மற்றும் பால் உற்பத்தி கூடிய மாடு களி ன் எ ண் ணา க்கை ய ய உயர்த்துவதற்காக கறவை மாடு வளர்ப்பு, கன் னிப்பசுக் களின் உற் பத் திதிட்டம் (HCRS), மடியழற்சி நோய் கட்டுப்பாட்டு நาகழ் ச் சித திட் டம் போ ன் $\mathbf{D}$ வேலைத்திட்டங்கள் ஒவ்வொரு ஆண்டும் கால்நடை உ ற் பத் தி சுகாதார தา ண க க ள த தา ゥ ஊடா க செயற்படுத்தப்பட்டு வருகின்றன.

அந்த வகையில் கன் னிப்பசுக்களின் உற்பத்தி முக்கிய இடம் பெறுகின்றது.
செயற் கைமுறை சினைப்படுத்தலின் ஊடாக தொடா்ந்தும் பயனை பெற்றுக்கொள்வதுடன் தேசிய பால் உற் பத் தியயயும் அதிகரித் துக் கொள்ளலாம்.

கன்னிப் பசு உருவாக்கும் செயற்றிட்டம் (HCRS)
செயற்கை முறை சினைப்படுத்தல் செயற்பாட்டினால் பிறந்த பெண் கன்றுகள் பதிவு செய் யப் பட் டு அவற் றிற் கு உள்ளீடுகள் வழங்கப்படுகின்றன.
பதிவு செய்யப்படும் க ன் றுகளை அடையாளம் காண காதடையாளம் இடப்படுகின்றது.


இதற்காக முதல் மூன்று மாதம் வரை கன்றிற்கான 17 kg அடர தீவனம் (Calf feed) கால்நடை உற்பத்தி சுகாதாரத் திணைக்களத்தினால் வழங்கப்படுகின்றது.


- செயற்கைமுறை சினைப்படுத்தல்

உள்நாட்டின் பசுக்கள் (Indigenous cattle) மற்றும் கலப்பின (Bos indicus/Zebu) பசுக்களினை உயர்ரக காளைகளின் விந்தினைக் கொண்டு சினைப்படுத்தும் செயன்முறை செயற்கை முறை சினைப்படுத்தல் எனக் கொள்ளப்படுகிறது. மேலும் செயற்கை முறை சினப்படுத்தலின் ஊடாக பிறக்கின்ற பெண் கன்றுகளின்


முறையான முகாமைத்துவம் பண்ணை ம ட ட த தி ல பา ரதா னமா க மேற்கொள்ளப்படின் உள்நாட்டினுள் இனவிருத்திக்கும் பாலுற்பத்திக்கும் பொருத் தமான இளம் பசுக் களின் எண் ணிக் கையை அதிகரிக்கலாம்.
 சினைப்படுத்தலினூடாக பிறக்கின்ற பெண் கன்றுகளை பதிவு செய்து தொழிநுட்ப சேவைகளை வழங்கி பால் உற்பத்தியை அதிகாிக்கவே இந் நிகழ்ச்சித்திட்டம் கால்நடை உற்பத்தி சுகாதார திணைக்களத்தின் ஊடாக செயற்படுத்தப்பட்டு வருகின்றது.


- கால்நடைமருத்துவப் பணிகள் க ன் னிப் பசுக்களின் அதிகபட் ச உற் பத்தியய அடை வதற்கும் ஆரோக்கியமான பசுக்களை பராமாிப்பதற்கும் கால்நடைகளுக்கு தேவையான மருத்துவ உதவி, நோய்த்தடுப்பு நடவடிக்கைகள் மிகவும் இ ன் றาயாை மா த னவாகும் . இச்சேவைகள் அரச கால்நடை வைத் திய நிலலயங் க ளினுடா க வழங்கப்படுகின்றன.

- பண்ணை முகாமைத்துவம்

பண் ண ணயா ளர் க ளின் தரமற் $ற$ பண்ணை முகாமைத்துவம் காரணமாக (poor management) கன்றுகளின் இறப்பு வீதம் கூடியளவு காணப்படுகின்றது. எனவே பெண் கன்றுகளின் முறையான முகாமைத்துவத்தை மேம்படுத்துவதன் மூலம் இறப்புவீதத்தை குறைத்து இத்திட்டம் வெற்றியடைய பங்களிப்புச் செய்யலாம்.
கன் றுகளுக்கு முதல் மாதத் தில் வயிற்றுப்போக்கு, குடற்புழுத் தாக்கம்,

காய்ச்சல் போன்றவற்றால் இறப்பு விகிதம் அதிகரிக்கின்றது. இதனைத் தவிர்ப்பதற்கு நல்ல காற்றோட்ட வசதியுடன் கூடிய மாட்டுப் பண்ணை அமைக் கப் பட வேண்டும். ஒரு மாட்டிற்கு $\quad 2-2.5 \mathrm{~m}^{2}$ அளவுள்ள இடமும் கன்றுகளுக்கு $1.5 \mathrm{~m}^{2}$ வரையா ன இடமும் வழங் கப் பட வேண்டும்.

பண்ணையில் ஆரோக்கியமா ன சூழ்நிலையை உருவாக்கவும் மழைநீா் வடிந் தோடவும் ஏற்ற வகையில் வடிகால்கள் அமைக்கப்பட வேண்டும். இதனால் மழைக் காலங் களில் கன்றுகளிற்கு ஏற்படும் நோய்களைத் தடுக்கலாம். கன் றுகளின் வளர்ச் சி விகிதத்தை அறிய 06 மாதங்கள் வரையும் வாரம் ஒரு முறையும் அதன் பின்பு மாதம் ஒரு முறையும் எடைபார்த்தல் நன்று. அத்துடன் கன் றுகளுக்கு குடற்புழு தாக்கத்திற்கான மருந்தும் வழங்கப்படுதல் வேண்டும்.

- பண்ணையாளர்களின் பங்களிப்பு கன் றுகள், இளம் பசுக் கள் மற்றும் பச்க்களை நோய்த் தொற்றிலிருந்தும் பாதுகாக்க வேண் டியது மிகவும் அவசியமாகும் . அத் துட ன் பதிவு செய்யப்பட்ட கன்றின் (HCR Calf) நிறை ஒவ்வொரு மாதமும் ஒரே திகதியில் அளந் து குறித்து வைக் கப் பட ல் வேண்டும்.

க ன் னிப் பசுவை பரீட் சிக் க வரும் உத்தியோகத்தர்களுக்கு அது தொடர்பில் ஒத்தாசை வழங்கப்பட வேண்டும். கால்நடை வைத்தியராலும், கால்நடை அபிவிருத் தி உத் தியோகத் தரா லும் வழங்கப்படும் ஆலோசனைகளை சரியாக பின்பற்ற வேண்டும். கன்றுகளுக்கு வழங்கப்படும் அடர்வுத்தீன் (Calf Feed) சரியான விகித முறையில் வழங்கப்பட வேண்டும். கன்னிப்பசுவின் நிறை கன்றின் நிறையில் 10-15 மடங்காக வரும் போது செயற்கைமுறை சினைப் படுத்தல் அறிகுறிகளை அவதானித்து அறிக்கையிட வேண்டும். அத்துடன் கீழ்வரும் தொற்று நோய் தடுப்பி்கு ஒத்தாசை வழங்க வேண்டும்.

தொண்டையடைப்பான் (HS) நோய்க்கு எதிரான தடுப்பூசி முதல் 06 மாத வயதிலும் பின்பு ஆண்டிற்கு ஒரு முறையும் ஏற்றிக் கொள்ளப்பட வேண்டும். கால்வாய் நோய்க்கு (FMD) 06 மாத வயதிற்கு மேல் முதல் தடுப்பூசியும் பின்பு ஒவ்வொரு 06 மாத இடைவெளியலலும் பூஸ்டர் (Booster) தடுப்பூசியும் ஏற்றிக் கொள்ளப்படல் வேண்டும்.

## - கன்னிப்பசுவின் வளர்ச்சி <br> செயன்முறை

பொதுவாக கன்னிப்பசுவின் நிறை அதன் பிறப்பு நிறையின் 10-15 மடங் கு அதிகமாகக் காணப்படும். இக் காலத்தில் கன்னிப்பசுவானது வேட்கை அறிகுறியை

வெளிக்காட்டி செயற்கைமுறை சினைப்படுத்தல் 18 மாதங்களுக்கு முன் மேற்கொள் ளப்படின், அது உச் ச வளர்ச் சியை அடைந்த பசுக் கன் று (கன்னிப்பசு) எனப்படுகின்றது. இது 18-21 மாதங்களாக காணப்படின் அப் பசுக் கன்று திருப்திகரமான வளர்ச்சியடைந்த பசுக்கன்று என வகைப்படுத்தப்படுகின்றது.

கன்னிப்பசு முதல் கன்று ஈனும் காலம் 28 மாதங்களுக்கு முன் எனில் அது உச்ச வளர்ச்சியை அடைந்த பசுவாகவும் அதுவே 30 மாதங்களுக்கு முன் எனில் அது திருப்திகரமான வளர்ச்சியடைந்த பசுவாகவும் கொள்ளப்படுகின்றது

வ்வாறான கட்டங்களாக பிரிக்கப்பட்டு அதற்கான ஊக்குவிப்பு கொடுப்பனவுகள் கால்நடை உற்பத் திசுகாதார தา ண க' க ள த’ தา ன ா ல• பண" ண ய ய ா ள ா க ளு க’ கு வ ழ ங் க ப் படு கา ன ற ன. இ து உண்மையிலேயே சிறந்த பாற்பண்ணை தொழிலில் ஈடுபடும் முயற்சியாளா்களுக்கு வரவேற்கத்தக்க ஒரு திட்டமாகும்.

## - உணவூட்டல் முறைமை

பசுந்தீவனம் அதிக நார்ச்சத்து மற்றும் புதத் சத்தினை (Protein) கொண்டுள்ளது. பால் உற்பத்தி ஊட்டச்சத்து மிக்க தீவனத்துடன் நேரடியாக தொடர்புடைய ஒன்றாக இருப்பதால் இளம் பசுக்களுக்கு ஊட்டச்சத்து மிக் க தீவனம் மிக இன்றியமையாத ஒன்றாகும். தீவனப்புல் வகையான நேப்பியர் வகை ( $\mathrm{CO} 3, \mathrm{C} 04$, $\mathrm{Co5})$, கினியாப்புல் மற்றும் தானியப் பயிர்களான தீவனச்சோளம், பயறு வகைத் தீவனம், தீவன மரங்களான அகத்தி, கிளிசெறிடியா போன்றவற்றை பண்ணையில் உற்பத்தி செய்வதன் மூலம் அதிகப் படியான செலவைக் குறைத்து

பண்ணையை இலாபகரமாக நடாத்த முடியும். இத்தீவனங்கள் கால்நடைகள் விரும்பி உண்ணக் கூடியனவாகவும் விலை மலிவானதாகவும் இருத்தல் நன்று. அதுமட்டுமல் லாது பசுவின் வளர் ச் சி, உட் கொள் ளப் படும் பசுந்தீவனத்தைப் பொறுத்தே அமையும். அதே சமயம் தேவையான அளவு அடர் தீ வ ாமும் கொடுத த ல் அவசியமாகும்.


இத்திட்டத்தின் மூலம் பயனடைந்த பண்ணையாளர்
இத்திட்டம் வெற்றிகரமாக

| பெயர் | த.திருஞானமூர்த்தி |
| :--- | :--- |
| முகவரி | பみங்காடு |
| பண்ணை இல. | 52391710 |
| கால்நநை <br> வைத்திய பிரிவு | ஆலையடிவேம்பு |


| கன்றை பதிவு செய்த <br> திகதி | 07.11 .2018 |
| :--- | :--- |
| காதறையாள இல. | 523917100002 |
| கன்றிற்கு செயற்கை முறை <br> சிதைப்படுத்தல் <br> 18 மாதத்திற்கு முன்னர் <br> (உச்ச செயலாற்றுகை) | 18.01 .2020 |
| 2வது சினைப்படுத்தல் | 02.06 .2020 |
| AI Certificate No. | 283706 |
| கர்ப்பம் பரீட்சித்தல் | 03.09 .2020 |
| கன்றீணல் <br> 28 மாதத்திற்கு முன்னர் <br> (உச்ச வசயலாற்றுகை | 06.03 .2021 <br> (Female) |

செயற் படுத் தப் பட் டமைக் கா ன சான்று

மேற்காட்டப்பட்ட (523917100002) கன் னிப்பசு HCRS திட்டத்தினுள் உள் வாங் கப் பட் டு தொடர் ந் தும் திணைக் களத் தினா ல் வழங் கப் படுகின்ற உள்ளீடுகளைப் பெற்றுக் கொண்டிருக்கின்றது.


இவ் வாறு சிறந்த பண் ணை முகாமைத்துவம், சரியான விகித உணவூட்டல், நோய்கட்டுப்பாடு, பண்ணையாளரின் முழு ஈடுபாடு என்பவற்றின் மூலம் வெற்றி கரமான க ன் னிப் பசு உற் பத் தி யினை மேற்கொள்ளலாம். இத்திட்டத்தின் மூலம் தேசிய பால் உற்பத்தி மேம்பாட்டிற்கு கால்நடை உற்பத்தி சுகாதார திணைக்களம் சிறந்த பங்களிப்புச் செய்து வருகின்றது.

## Dr. M.J. Nowshad Jamaldeen

எமது நாட்டில் கோழிப் பண்ணைத் தொழிலானது மிகவும் வளர்ச்சி அடைந்த நிலையில் காணப்படுகின்றது. உள்ளக, அரை உள்ளக மற்றும் கொல்லைப் புற கோழி வளர்ப்பு போன்று முறைகளில் நாட்டுக் கோழி களும் பண் ண கோழிகளும் வளர்க்கப்படுகின் றன. கிழக்கு மாகாணத்தில் நாட்டுக்கோழி வளர்ப்பு மற்றும் கொல்லைப் புற கோழி வள்்ப்பு துறைக்கு கிழக்கு மாகாண கால்நடை உற்பத் தி சுகாதார திணைக்களத்தின் கீழ் இயங்குகின்று உப்புவெளி பிராந்திய கால்நடைப் பண்ணையினால் குறிப்பிடத்தக்க அளவு பங்களிப்பு செய்யப்படுகின்றுது.

மேலும் குறித்த தொழிலானது எமது மாகாணத்தில் ஒரு வளர்ந்து வரும் துறையாகவும் உள்ளது. இதனால் சூழலுக்குப் பொருத்தமான இயற்கையாக கிடைக்கக்கூடிய தொற்றுநீக்கிகளைப் பாவிப்பதன் மூலம் ம னிதன், விலங்குகள், சூழலுக்கு ஏற்படும் பாதிப்பை கணிசமாகக் குறைக்க முடியும். அத்துடன் விரைவாகப் பரவி அதிகளவில் பொருளாதார நட்டத்தை ஏற்படுத்தக்கூடிய நோய்களில் இருந்தும் பாதுகாக்க முடியும்.
இந் த வகையில் இயற்கையாக

கி டைக் கக் கூடிய சு ண் ணாம் பு கரை ச லா ன து முக் கியத் துவம் பெறுகின்றது. இது சுண்ணாம்புக் கற்பாறைகளிலும் சிப்பிகளிலிருந்தும் அநேகமாகப் பெறப்படுகிறது. இது எமது நாட்டில் தாராளமாகக் கிடைக் கக் கூடிய ஒரு சேதனப் பொருளாகும். அதிலும் கிழக்கு மாகாணத்தில் இக்கனியம் திகன, மட்டக்களப்பு மற்றும் அம்பாறையில் சา ல இட ங• க ள า லு ம• கிடைக்கக்கூடியதாக இருக்கின்றது.

இது தூளாக இருக்கும் போது கல்சியம் ஒக்சைட்டு ( CaO ) எனவும் இதனுடன் நீர் சேர்க்கும் போது கல் சியம் ஐதரொக்சைட்டு $\left(\mathrm{Ca}(\mathrm{OH})_{2}\right)$ எனவும் அழைக் கப்படும். (Slaked lime) இவற்றை நீடுடன் சேர்க்கும் போது இதன் காரத்தன்மை அதிகரிக்கின்றது (PH 12-13). இதனால் மிகவும் வினைத் திற னா ன முறையி ல் இக்கரைசல் தொழிற்பட்டு நோய்களை உ ண் டாக்கும் நுண் ணங் கி களை இல்லாதொழிக்கின்றது.

இக்கரைசலை கோழிப்பண்ணைகளில் மட்டுமல்லாது ஏனைய கால்நடைப் ப ண• ๑ ண க ள ? லு ம. பயன்படுத்தக்கூடியதாக இருக்கின்றது. மேலும் இக்கரைசலை பயன்படுத்தும்

போது தற்காற்பு அங் கிகளை அணிந்திருப்பது கட்டாயமாகும்.
நோக்கம்
கோழிப் பண் ண க ளி ல் ( $\quad$ のைய பண்ணைகளிலும்) நுழைவாயில்களில் கால் குளியல் (Foot bath) ஆகப் பய ் படு த் து வ ன் மூ ல ம் பண்ணைகளுக்குள் நோய்க்கிருமிகள் உட்செல்வதை தடுத்தல்.

## நன்மைகள்

1. பண்ணைக்கு வெளியிலிருந்து பண் ணையினுள் நோய்க்கிருமிகள் செல்வதைத் தடுப்பதன் மூலம் ஒரு தொற்று நீக்கியாகத் தொழிற்படுகின்றது. உதாரணமாக பறவைக் காய்ச்சல், கோழிகளுக்கேற்படும் ரனிகெட் மற்றும் ஏனைய மிகவும் வேகமாகப் பறுுகின்ற அதிக இறப்புகளை ஏற்படுத்துகின்ற நோய் களிலிருந் தும் பாதுகாப் புப் பெறலாம்.
2. பண் ணைகளில் அமோனியா துர்நாற்றம் உ ண்டாவதை குறைக்கின்றது.

சுண்ணாம்புக் கரைசலைக் கொண்டு கால் குளியல் (Foot Bath) தயாரிக்கும் படிமுறை


## 20VETERINARIAN

## கிழக்கு மாகாணத்தின் நிலைபேறான பாற்பண்ணைகள்

Dr. (Mrs.) Narmathaa Cumuthan
நிலைபேறான அபிிருத்தி என்பது மனித வளர்ச்சி எனும் இலக்கினை அடைவதற்கான ஒரு கொள்கையாகும். இக்கொள்கை பரிபூரண வெற்றியைப்பெற பொருளாதார ரீதியாக சாத்தியமானதாகவும், சூழல் ரீதியாக ஆரோக்கியமானதாகவும், சமூக ரீதியாக சமமானதாகவும் அமைய வேண்டும். இப்பின்னனியில் பாற்பண்ணைகளின் நிலைபேறான அபிவிருத்தி என்பது உயர்தர பாலறற்பத்தியில் தன்னிறைவு பெற வேண்டும் என்ற இலட்சியத்தை கொண்டுள்ளது. இது ஒரு பெரிய சவாலாக மட்டுமல்லாமல் அபிவிருத்திக்கான சிறந்ததோர் வாய்ப்பாகவும் அமைகின்றது. இச்செயற்பாட்டின் போது புதிய தொழில் நுட்பங்களை பெறுவதற்கு மேலதிகமாக பண்ணைகள் தொடர்பான வித்தியாசமான அணுகுமுறை மற்றும் அறிவு அவசியமாகின்றது.

கிழக்கு மாகாணத்தில் சமூக ரீதியாக பரிணமித்த உலர் வலய பாரம்பரிய கிராம முறைமையினை (Dry zone Traditional Village System - DTVS) பொருளாதார ரீதியாக சாத்தியமான நிலையான பால் உற்பத்தியாக மாற்றுதல் சவாலான விடயமாயினும், மூன்று மாவட்டங்களுக்குமான இயற்கை வளங்களின் பரவலானது உற்பத்தியில் தன்னிறைவு என்ற இலக்கினை எட்டுவதற்கு ஏதுவாக அமைந்துள்ளமை கண்கூடு. கால்நடைகளை பொருத்த வரையில் 521,409 வரையான மாடுகளும் 219,015 வரையான எருமை மாடுகளும்
 பொருளாதாரத்திலும், கிராமிய சமூக பொருளாதாரத்திலும் நாம் முக்கிய பங்கு வகிக்க வழிகோலுகின்றது. இந்த நிலையில் ஒருங்கிணைந்த பண்ணை அணுுுுறை மூலமும் கல்வி மற்றும் பயிற்சியில் கவனம் செலுத்துவதன் மூலமும் 2025 தொடக்கம் 2030 வரையான காலப்பகுதிக்குள் "தரமான பாலில் தன்னிறைவு" என்ற இலக்கினை நாம் அடைய முடியும்.

|  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| மாவட்டம் | கால்நடைப்பண்ணைகள் |  |  | கால்நடைகளின் எண்ணிக்கை |  |  | $\begin{array}{\|c} \text { தினசரி } \\ \text { உால் } \\ \text { உற்பத்தி } \end{array}$ |
|  | மாடு | எருமை | மொத்தம் | மாடு | எருமை | மொத்தம் |  |
| திருகோணமலை | 13,142 | 4,073 | 17,215 | 100,250 | 79,868 | 180,118 | 44,722 |
| மட்டக்களப்பு | 23,488 | 5,064 | 28,552 | 293,648 | 89,462 | 383 | 36,666 |
| அம்பாறை | 25,648 | 2,298 | 27,946 | 127,511 | 49,685 | 110 | 66,030 |
| மொத்தம் | 62,278 | 11,435 | 73,713 | 521,409 | 219,015 | 177,196 | 147,418 |

நிலைபேறான பண்ணைகளின் திட்டத்தை வெற்றிகரமாக நடாத்திச்செல்ல பாதுகாப்பான மற்றும் சட்டபூர்வமான நிலத்தினை வழங்கல், தற்போதுள்ள பண்ணை முறைகளை தீவிரப்படுத்தி வணிகமயமாக்க ஊக்குவிப்பதற்கான முறையில் மேய்ச்சல் காணிகளை வழங்கல், கால்நடைகளின் நலனை பேணல், மற்றும் கால்நடை பண்ணையாளர்களுக்கும் சாகுபடி விவசாயிகளுக்குமிடையிலான புரிந்துணர்வினை மேம்படுத்தல் போன்றன தீரக்கப்பட வேண்டிய சவால்களாக உள்ளன.

மேற்படி விடயங்களை கருத்தில் கொண்டு உலர் வலய பாரம்பரிய கிராம முறைமையின் கீழ் (Dry zone Traditional Village System - DTVS) நந்ரவகிக்கப்படும் கால்நடைகளுக்கு பாதுகாப்பான சட்ட ரீதியான மேய்ச்சல் நிலங்களை இலவசமாக வழங்கல்இ அவை வழங்கப்படும் வரையில் வனத்துறை திணைக் களம் மற் றும் மகாவலา அதிகாரசபையுட ன் இணைந் து மேய் ச் சல் நில நெருக்கடிகளுக்கு தீர்வு காணல் போன்ற ஆலோசனைகள்

கால்நடை உற்பத்தி சுகாதார திணைக்களத்தினால் கிழக்கு மாகாண கௌரவ ஆளுநரிடம் முன்வைக்கப்பட்டள்ளது. அதேவேளை கிழக்கு மாகாண கௌரவ ஆளுந்் அவர்களின் ஆலோசனையின் படி "Thirasara Kushisanskruthiya" திட்டத்தின் கீழ் கிழக்கு மாகாண கால்நடை உற்பத்தி சுகாதார திணைக்களத்தின் திட்டமிடல் மற்றும் வழிகாட்டலின் கீழ் 2021ஆம் ஆண்டில் 50 வீத மானிய அடிப்படையில் ஒரு பண்ணையாளருக்கு ஒரு மில்லியன் வழங்கப்பட்டு 30 மாதிரி நிலைபேறான பண்ணைகள் உருவாக்கப்பட்டுள்ளமை கிழக்கு மாகாணத் தின் தன் னிறைவான பாலுற்பத் தி என்ற கருப்பொருளில் ஒரு மையக்கல்லாக அமைந்துள்ளது.

## இத்திட்டமானது,

- சுற்றாடல் பாதுகாப்பினை உறுதிப்படுத்துவதுடன் கிராமிய சமூகங்களுக்கிடையில் வாழ்வாதாரத்திற்கான நிலையான உற்பத்தியை மேம்படுத்தல்
- கால்நடை வளங்களை முழுமையாக பயன்படுத்துவதுடன் அவற்றின் கழிவுகளான சாணம் மற்றும் சிறுநீ்ர என்பவற்றை இயற்கை பசளையாக விவசாயத்திற்கு பயன்படுத்துதல் மூலம் சுற்றுச்சூழல் பாதுகாப்பு மற்றும் நஞ்சற்ற உணவு உற்பத்தி என்பவற்றை மேம்படுத்தல்.
- அரை ஏக்கர் வேலி இடப்பட்ட நிலத்தில் புல் உற்பத்தியினை மேற்கொண்டு வணிகமுறையில் அதனை மேம்படுத்தல்
- உள்ளக வளர்ப்பு (Loose barn system) முறையினை ஊக்கப்படுத்துவதன் மூலம் விவசாய மற்றும் கால்நடை பண் ணையாளர் களுக்கிடையிலான புரிந்துணர் வினை மேம்படுத்தல்
- தொழில் வாய்ப்புக்களை உருவாக்குதல்
- பெறுமதிசே்் பாலுற்பத்தி பொருட்களின் உற்பத்தி மற்றும் விற்பனையை மேம்படுத்தல்
- மழை நீர சேகரிப்பு வசதி மற்றும் உயி்் வாயு உற்பத்தி அலகு என்பனவற்றை உருவாக்குவதன் மூலம் பண்ணையாளர்களின் பொருளாதாரத்தை மேம்படுத்தல்

போன்ற நோக்கங்களை அடிப்படையாகக் கொண்டுள்ளது.
இந் நேக்கங் களை அடைவதற்கு நிலைபேறா ன பாற்பண்ணைகள் அமைக்கப்படும் போது குறைந்தது 10 மாடுகளை கொண்ட மாட்டுக்கொட்டகை, மழைநீர் சேகரிப்பு நிலையம், உயிர்வாயு அலகு, புல் வளர்ப்பிடம், சைலேஜ் உற்பத்தி, இயற்கை உர தயாரிப்பு என்பன முக்கிய அலகுகளாக காணப்படுபகின்றன.

1. மாட்டுக்கொட்டகை

ரூபா. 500,000.00 பெறுமதியில் குறைந்தது 10 மாடுகளை உள்ளடக்கக் கூடிய வகையில் மாட்டுக்கொட்டகைகள் (Loose


barn system) நிர்மானிக்கப்பட்டுள்ளன.
2. மழைநீர் சேகரிப்பு நிலையம்

ரூபா.100,000.00 பெறுமதியான மேல் கூரையிலிந்து வழிந்தோடும் மழை நீரை தொட்டியினுள் சேகரிப்பதற்கான அலகினை ந்்ரமானித்தல் மற்றும் சேகரிக்கப்பட்ட மழைநீரை வீட்டுப்பாவணை, கால்நடைகளுக்கான பாவணை மற்றும் புல்வளர்ப்பி்்காகவும் பயன்படுத்தத்தக்க வகையில் குழாய் வசதியினை ஏற்படுத்தல் போன்ற செயற்பாடுகள் முன்னெடுக்கப்பட்டுள்ளன.

3. உயிர்வாயு அலகு

உயிர்வாயு அலகினை நிர்மானித்து பிறப்பிக்கப்படும் சக்தியினை மின் அலகாக மாற்றி வீட்டுப்பாவனைக்காக பயன் படுத் தும் வகையில் ரூபா. $150,000.00$ செலவிடப்பட்டுள்ளது.

4. புல் வளர்ப்பிடம்

புல் வளர்ப்பு நிலத்தினை மேம்படுத்தி புல் வளர்ப்பிற்கு தேவையான தூறல் நீர்ப்பாசனமுறை நிர்மானிக்கப்பட்டு பொருத்தமான சுற்றுவேலி அமைக்கப்பட்டு கால்நடைகளுக்கு வருடம் முழுவதற்கும் தேவையான உணவினைப் பெற்றுக் கொள் ள ரூபா $100,000.00$ செ ல வา ல் வழியமைக்கப்பட்டுள்ளது.


## 5. சைலேஜ் (Silage) உற்பத்தி (Barrel system)

பொருத்தமான கொள்கலன்கள் கொள்வனவு செய்யப்பட்டு ரூபா 50,000.00 செலவில் நிர்மானிக்கப்பட்டுள்ள சைலேஜ் தயாரிப்பு அலகானது மேலதிக புல் உற்பத்தியினை வருடம் முழுவதும் பேணக்கூடிய நிலையினை ஏற்படுத்தியுள்ளதுடன் வணிக ரீதியாக சைலேஜ் விற்பனை மூலம் பண்ணையாளனின் பொருளாதாரத்தை மேம்படுத்த வழிகோலியுள்ளது.

6. இயற்கை உர தயாரிப்பு

பொருத்தமான கொள்கலன்கள் கொள்வனவு செய்யப்பட்டு ரூபா 100,000.00 செலவில் ந்்மானிக்கப்பட்டுள்ள இயற்கை உர தயாரிப்பு அலகின் மூலம் புல் வளர்ப்பிற்குத் தேவையான உரம் கிடைப்பதுட ன் வணிக செயற்பாடாகவும் பண்ணையாளருக்கு பயனளிக்கின்றது.


இவ்வாறான ஆறு மூல அலகுகள் மூலம் இயற்கை முறையில் சம காலத்தில் நாட்டின் தேவையைக் கருத்தில் கொண்டு உருவாக்கப்பட்ட கிழக்கு மாகாணத்தின் நிலைபேறான பாற்பண்ணைகளை நிர்மானிக்கும் திட்டமானது, ஒவ்வொரு பண் ணையா ளர் களி னா லும் தமது வசதிக் கேற்ப நடைமுறைப்படுத் தப்படும் போது தனிநபரின் பொருளாதாரத்தை மட்டுமல் லாது நாட்டி ன் பொருளாதாரத்தையும் கட்டியெழுப்பி பாலில் தன்னிறைவு என்ற இலக்கினை அடைய வழிவகுக்கும் என்பதில் சிறதும் ஐயமில்லை. இதற்கான கால்நடை உற்பத்தி சுகாதார திணைக்களத்தின் முயற்சியில் ஒவ்வொரு பண்ணையாளரும் கைகோர்க்க வேண்டும் என்பதே எமது எதிர்பார்ப்பாகும்.

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 ลอฺว๓อง.


















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காட்டு விலங்குகள் மனிதர்களின் பொழுதுபோக்குக்காக சிறைப்பிடிக்கப்படக்கூடாதவை. சுற்றுச்சூழலும் விலங்குகளும் ஒன்றிணையும் போதே சிறப்பாக செயல்படுகின்றன. யானைகளை காட்டில் வாழ விடிங்கள்.


Concept and Guidance:
Dr. Tharanga Thoradeniya \&
Dr. Deepani Jayantha


Translation:
Miss. Aruljenani Kumutharanjan
Undergraduate Student, Faculty of Medicine, Colombo

Art \& creation by:
Januli Sehansa Amarakoon (12 years)
Musaeus College, Colombo

## STORY -1




## 




 બ๐びతో మిต．















＂民て๘ ๑๑ณงว．．？＂


































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 ธึออฺ．






































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