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Animal & Us: We Care

Halal Slaughtering: To Stun or Not To Stun?

Thohira Aquaformula

Research Personality:

PROF. DATIN PADUKA DATO' DR. AINI IDERIS

Vice Chancellor of UPM

Content

Cover Story

4 Halal Slaughtering: To Stun or Not To Stun?

Research Highlights

7
Research Centre of Excellence (RCoE)
- Research Centre for Ruminant Diseases

Innovation
- Real-time Detection Kit for Avian Influenza – H9N2
- InGNeoSA – Interactive Games on Neoplasia in Small Animal

UPM Commercialization

12 Thohira - Aquaformula

Research Personality

14 Prof. Datin Paduka Dato' Dr. Aini Ideris

Featured Articles

19
Social Science
- Attitudes of Stakeholders to Animal Welfare During Slaughter and Transport in SE and E Asia

Science & Technology
- Prevalence and Risk Factors of Japanese Encephalitis Virus (JEV) in Livestock and Companion Animals in High-Risk Areas in Malaysia

Reaching Out

22
- "With Knowledge We Serve": Effective Extension and Reaching Out in Ruminant Livestock Industry of Malaysia
- Karnival Pendidikan #SmartSelangor 2018

Special Highlight

24
- University Veterinary Hospital
- MoU between UPM and Malayan Flour Mills (MFM) Berhad
- UPM-Farm Fresh ICoE
- *Majlis Apresiasi Penyelidikan* (MAP) 2017

News

28
- Chicken Feed Using the Larvae of Black Soldier Fly (*Hermetia illucens*)
- UPM Made History, Top 32nd Place in UI-Greenmetric Ranking
- SPR Sensor Chip Innovation Helps Early Stage Dengue Detection
- UPM Scientists Appointed as ASM Fellows and Awarded as TRSM
- Prof. Dato' Dr. Mohd Hair Bejo, Recipient of 2018 Merdeka Award

Book Highlights

31 Discovering 100 Birds of Universiti Putra Malaysia

Letters to Editors

If you have any comments and suggestions about the content of the publication, please e-mail to synthesis@upm.edu.my. The editors reserve the right to edit articles before publication.

In this issue, we focus on the connection of animals and human. Animals have long been an integral part of human culture and are essential to human survival. Apart from being an important food and economic resource, animals also drive happiness, being great companions to humans. In July 2017, Malaysia has achieved a new milestone in protecting animal rights with the Animal Welfare Act 2015 that came into force. Good animal welfare requires disease prevention and veterinary treatment, appropriate shelter, management, nutrition, humane handling and humane slaughter.

The cover story of this issue is on halal slaughtering focussing on the animal welfare of the animals. Ruminants; which plays a major role in ensuring our food security, we highlight RUMINANT (Research Centre for Ruminant Diseases) in the research section together with some other innovations and commercialization from our researchers. Our honourable Vice Chancellor whom is an avian medicine expert is featured as the research personality for this issue. We also introduce to you two new and exciting sections – Reaching Out and Special Highlight that will definitely furnish you with the more relevant and useful information. Current happenings around UPM will be also updated in the news section. Finally, we hope you will enjoy reading this selection of articles.

> "Halal slaughter without stunning is legally recognized as the appropriate method for slaughtering animals intended for consumption by Muslims. However, halal slaughter is extremely controversial from animal welfare perspective.

The contribution of livestock to the nutritional and economic wellbeing of man is undeniable in various parts of the world. Livestock production is an active and dynamic industry that is central to the wellbeing of many people and a crucial part of the economy in many countries. Thus, sustainable livestock production is imperative for man's survival. One of the major livestock products is meat. Meat is a major food in its own right and a staple ingredient in many food products. Man's love for meat is undeniable.

Slaughter, despite its short duration is a critical point in the meat production chain, with potential risks and its mishandling can ruin the efforts made by producers during the longer growing and fattening phases. Halal slaughter without stunning is legally recognized as the appropriate method for slaughtering animals intended for consumption by Muslims. However, halal slaughter is extremely controversial from animal welfare perspective. This prompted the use of some stunning techniques in conjunction with halal slaughter. Nonetheless, there are growing concerns that various forms of pre-slaughter stunning could violate the basic requirements of halal slaughter and compromise carcass quality and the aesthetic and spiritual quality of meat. Thus, should animals be stunned in halal slaughter?

In this issue of synthesis, we will examine the fundamentals and merits of halal slaughter, and appraise the strategies that could be employed to enhance animal welfare during halal slaughter. Our features on research projects, research groups, and the innovations in UPM highlight the cutting edge in Animal and Veterinary science with potential to contribute positively to the continuing development of global animal production and health sectors. In addition, we present the research personality and the commercialization efforts of UPM researchers in tandem with the current theme. Featured articles from Science & Technology and Social Science groups are oriented towards animal health and welfare. To keep you abreast, we bring news around the university. We package all these for your reading delight. Enjoy!

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Halal Slaughtering: to Stun or Not to Stun?

Halal slaughter refers to the method of slaughter that is premised on Islamic injunctions. The guidelines for *halal* slaughter center on the slaughterer, slaughtered animal, slaughtering equipment, and process. The basic requirements for *halal* slaughter are: (1) the animal should be alive at the time of slaughter. (2) Allah's name and glorification must be uttered by the slaughterer at the time of the slaughter of each animal; (3) effort should be made to slaughter the animal with one stroke using a very sharp knife; (4) slaughtering should be carried out from the front side (towards the chest) and not from behind (towards the back); (5) carotid arteries, jugular veins, trachea and esophagus must be severed; (6) head should not be severed from the neck during slaughter; and (7) carcass dressing is not allowed to commence before the animal is completely dead.

For the Muslims, meat produced by *halal* slaughter is considered of highest spiritual quality, which forms the basis for other quality attributes. *Halal* slaughter is perceived as cruel and contrary to scientific wisdom by the proponents of stunning. Thus, they consider *halal* meat to be ideologically of the lowest quality due to the tendency of *halal* slaughter to compromise animal welfare. It must be emphasized that the combative posturing of the rival sides partly resulted from obsolete dogma that pitches science against Islam and enables arguments that create obstacles toward progress. A critical and rational appraisal of these issues often reveals little or no basis for conflict between the proponents of *halal* slaughter and those of animal welfare. For instance, both groups agree that animal welfare is imperative. Proponents of animal welfare posited that the five freedoms of animals (freedom from hunger and thirst, discomfort, pain, injury and disease, fear and distress and freedom to express normal behavior) can only be fully achieved if animals are stunned prior to slaughter. The requirements of animal welfare are well entrenched in the guidelines for *halal* slaughter. Islam teaches that animals are to be slaughtered according to the mindful and attentive way taught by the prophet Muhammad (peace be upon him) as indicated in the following hadith: "Allah calls for mercy in everything, so be merciful when you kill and when you slaughter; sharpen your blade to relieve its pain"

Numerous quality problems including different forms of hemorrhages in the muscles and organs of livestock; carcass damage; broken bones; increased drip loss, reduced aging potential; poor color stability etc. are associated with the use of pre-slaughter stunning and its accompanying practices. These issues are rarely encountered in carcasses of non-stunned animals. Although slaughter without pre-stunning is used in *halal* meat production and the practice minimizes meat quality issues, nonetheless, it has the potential to compromise animal welfare at slaughter if not carefully and conscientiously applied.

Concerns about *halal* slaughter focus on the stress caused during the preparation stages before neck cut, pain, and distress that may be experienced during and after the neck cutting and the worry of a prolonged period of lost brain function during the points between death and preparation. *Halal* slaughter per se should not have deleterious effect on animal welfare and meat quality more than its industrial equivalents. However, some of its associated pre- and post-slaughter processes do. *Halal* slaughter of animals is carried out with the intention of removing the blood and killing the animal being slaughtered through the stoppage of oxygen delivery to the brain. From the *halal* perspective, the removal of flowing blood is necessary as it is considered an impurity that must never be consumed by Muslims. This is achieved through severing both carotid arteries and jugular veins in the neck. Severing both carotid arteries speeds bleed out and thus reduces the time to loss of sensibility and reduces the risk of suffering.

Some strategies can be employed to improve animal welfare during slaughter without stunning. Animals to be slaughtered must be restrained in a comfortable position using appropriate equipment in order to spare them from any avoidable pain, agitation, injury, or contusions. The restraint devices should be non-slip, possess pressure-limiting devices, moving parts should move steadily, and the concept of optimum pressure must be used. Animals must be insensible and unconscious before it is removed from the restraint device and hung on the rail, as this will not cause unnecessary pain. The knife design and the cutting procedure are critical in preventing the animal from reacting to the cut as a quick flow of blood and loss of consciousness immediately. Sharpness of the knife and performing a complete uninterrupted cut could influence other factors such as vasoconstriction, clotting, ballooning known also as carotid occlusion, or false aneurysm. In addition, the length of the knife should be twice the width of the animal's neck, which means about 20–22 cm for poultry, 45–48 cm for a veal calf, and 55–60 cm for adult cattle. Such a knife can be easily drawn across the neck without having the tips at either end enter the open wound causing needless pain. Knives that are too short where the tip gouges into the neck will often cause violent struggling.

In order to improve animal welfare, some religious authorities have accepted stunning either immediately before or immediately after the throat cut. The syariah requirements for pre-slaughter stunning are:

1. The method used should be reversible stunning and should not kill or cause permanent physical injury to the animal.
2. The person who is responsible for the stunning operation (operation, control and monitoring) should be trained in its use and should preferably be a Muslim.
3. The Muslim *halal* checker should verify that the stunning operation is conducted according to the approved methods.
4. The animal to be slaughtered should be alive or deemed to be alive at the time of slaughter.
5. If the animal is found dead due to the stunning procedure, the slaughter man should identify and remove it from the *halal* system.
6. A Muslim slaughter man must invoke the phrase Bismillahi Allahu Akbar immediately before slaughtering.
7. The bleeding should be spontaneous and complete.
8. Scalding of poultry and carcass dressing of ruminants should only begin after the animal has been deemed dead from bleeding.
9. The equipment or tools used should only be dedicated to stunning *halal* animals and never be used for stunning animals which are considered *haram* by Syariah law.

If the equipment that were once used for *haram* animals are to be converted to use in the stunning of *halal* animals, they (equipment) should be ritually cleansed. The procedure should be supervised and verified by a competent Islamic authority.

The premises for stunning of *halal* animals should be physically segregated from other premises that deal with *haram* animals.

Bearing in mind all these requirements, we carried out a number of research projects to assess the effects of *halal* slaughtering using various pre-slaughter stunning methods on the welfare of cattle, goats, broiler chickens, and rabbits. Taken together, the results of these studies support the idea that *halal* slaughter, when carefully and conscientiously conducted, ensures spiritual and conventional meat quality without compromising animal welfare. It was concluded that, *halal* slaughter may be incorporated with pre-slaughter stunning to promote animal welfare, safety of abattoir workers, and the efficiency of slaughtering operations. However, the stunning procedure must comply with *halal* guidelines.

> “Concerns about *halal* slaughter focus on the stress caused during the preparation stages before neck cut, pain, and distress that may be experienced during and after the neck cutting and the worry of a prolonged period of lost brain function during the points between death and preparation.”

PROJECT MEMBERS

Researchers

- **Prof. Dr. Zulkifli Idrus**
- **Prof. Datuk Dr. Mohd Hair Bejo**
- **Prof. Dr. Fatimah Abu Bakar**
- **Prof. Dr. Goh Yong Meng**
- **Prof. Dr. Mohd Zainal Abidin Ab Kadir**
- **Prof. Dr. Noordin Mustafa**
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- **Assoc. Prof. Dr. Faez Firdaus Jessie Abdullah**
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- **Dr. Elmutaz Atta Awad**
- **Dr. Kazeem Dauda Adeyemi**
- **Dr. Khadijah Nakyinsige**
- **Dr. Lau Seng Fong**
- **Dr. Mazlina Mazlan**
- **Dr. Muhamad Alif Zakara**
- **Dr. Ubedullah Kaka**
- **Dr. Zeiad Amjad Abdulrrazak Aghwan**
- **Mr. Ahmed Abubakar Abubakar**
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- **Ms. Norbaiyah Bahyuddin**
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- **Prof. Dr. Craig Johnson (Massey University, New Zealand)**
- **Dr. Alison Holdhus Small (CSIRO, Australia)**
- **Dr. Jim Webster (Ag Research Limited, Ruakura Research Centre, New Zealand)**
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Research Centre of Excellence (RCoE):

Research Centre for Ruminant Diseases

Research Centre for Ruminant Diseases (RCRD), previously known as Centre of Excellent for Ruminant was established in 2008. RCRD coordinates and focuses the strength of the Faculty of Veterinary Medicine in ruminant disease and medicine towards research on selected and important ruminant diseases.

> "The goals of RCRD are to **enhance knowledge on important ruminant diseases** via integrated and inter-disciplinary"

With the current expertise, facilities and collaborative partners worldwide, the Research Centre for Ruminant Diseases provides a conducive research environment for researchers to collaborate in research and provide training for young researchers and farmers. Currently, RCRD is active in 5 research programs involving 5 principles and 5 associate researchers, and a research officer.

The goals of RCRD are to enhance knowledge on important ruminant diseases via integrated and inter-disciplinary research activities and disseminate the research output and knowledge both locally and internationally via scientific publication and training.

Mission

To become a leading regional research centre on ruminant diseases through integrated and inter-disciplinary research.

Objectives

1. To perform integrated and comprehensive research, which include fundamental and strategic researches on selected ruminant diseases
2. To disseminate research results and outcomes both at national and international levels through scientific publications
3. To enhance the awareness on ruminant diseases and control methods via advisory, consultation and training activities
4. To offer scientific environment on ruminant research for collaborative research and training

Activities

Current research programs include:

1. **Pasteurellosis of ruminants**
   - Pasteurellosis of goats and sheep
   - Haemorrhagic septicaemia of cattle and buffaloes
2. **Zoonotic diseases**
   - Brucellosis of large and small ruminants
   - Caseous lymphadenitis of goats
3. **Herd health and disease control**
   - Herd health protocols including feed and feeding, and breeding of meat goats and buffaloes
4. **Metabolic diseases of ruminants**
   - Ketosis and milk fever

PROJECT MEMBERS

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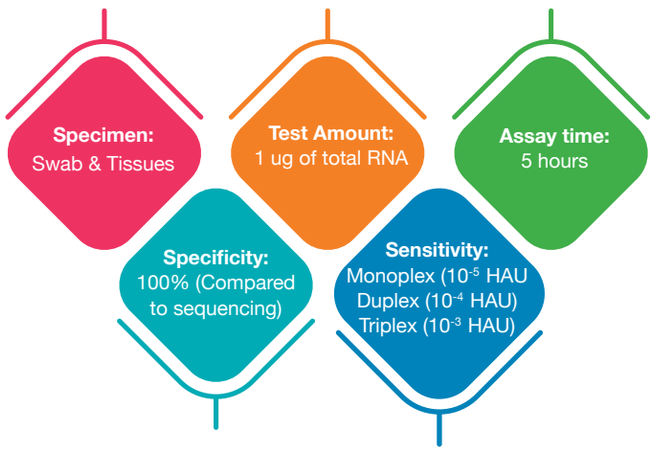
Real-time Detection Kit for Avian Influenza – H9N2

H9N2 is a low pathogenic avian influenza (LPAI) commonly found in many countries in Asia, the Middle East, Africa, and Europe. The virus often goes undetected especially in countries that do not carry out surveillance. In addition, waterfowl and migratory birds harbour the virus without showing any signs of illness. Some H9N2 strains are also known to be zoonotic causing respiratory illness in human and may contribute to emerging human-lethal viruses such as H5N1, H7N9, and H5N6, posing a substantial threat to the public health.

Despite H9N2 being an LPAI virus, concurrent infection with other agents and stressful conditions may amplify H9N2 infection in chickens causing significant losses to the poultry producers. H9N2 is a respiratory virus that is transmitted rapidly in commercial chicken flocks. Risk assessment and routine surveillance must be carried out to detect possible early infection and take the appropriate measures to reduce losses. The present invention provides a method of simultaneously detecting influenza virus type A and subtyping of the H9N2 subtype of influenza virus. The test is robust with the following characteristics;

TEST CHARACTERISTICS



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InGNeoSA

– Interactive Games on Neoplasia in Small Animal

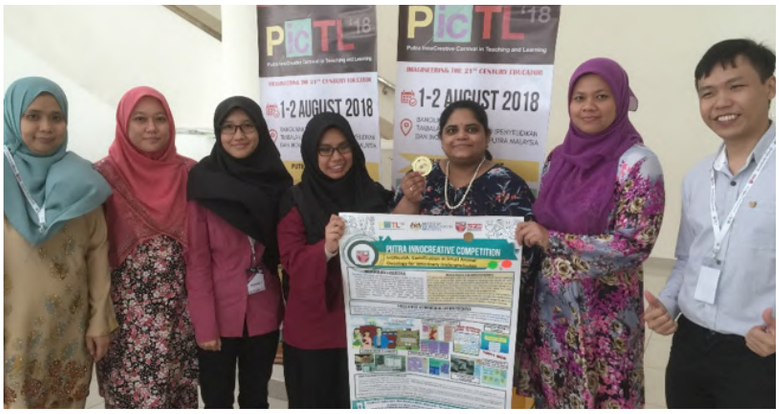
Veterinary Oncology can be a heavy and dark subject taught in veterinary schools because of the complexity in diagnosing and providing supportive treatment to animals with cancer as well as dealing with end-of-life related matters. Veterinary Oncology covers a diverse field, from understanding basic cancer biology (fundamental), histopathology classifications, variable clinical presentations in animals, diagnostic investigations required, treatment strategies and clinical outcomes. Gamification approach was incorporated in teaching and learning of veterinary oncology using digital gaming media.

InGNeoSA is intended for final year DVM students. To play, students should have completed basic radiology, anatomy, physiology, canine and feline medicine and clinical pathology; histopathology and diagnostic imaging subjects which are relevant to clinical oncology. InGNeoSA was developed based on real oncology cases presented to the University Veterinary Hospital of UPM, having all the materials used genuine. InGNeoSA strives to make student centered learning fun, time saving, visually appealing, reduce utilization of printed materials/papers in addition to tap student's affinity towards the use of media technology in learning veterinary oncology. This game will be available online with specific login requirement, which enables students to play and engage in this game at a time convenient to them.

There are 6 Gaming Rooms which include: CANCHIST (history of cancer, metastasis, terminologies), TUMBIOL (differentials, fundamental cancer biology), GUESS THE TUMOUR (images of animals with tumour and likely diagnosis), IMAGINE (puzzles on diagnostic imaging), HISCYTO (histopathology, cytology), and CHEMOX (clinical pathology, chemotherapy, toxicities). Each room has a total score of 100 which can be used as assessment. This game is comprehensively covering all the subjects related to oncology in cats and dogs. Veterinary postgraduate students should be able to play this game as well. It is the intention of the developers to make learning in veterinary oncology fun and easy to understand among veterinary students. Students found the game very colourful, informative, exhilarating and engaging!

This invention and innovation have been exhibited in three events in 2018 and won GOLD medal in all the three events: K-NOVASI 2018 (UKM), PICT-L (UPM) and IUCEL 2018 (IIUM).

> "It is difficult to find something that is **helpful and fun** for your study revision, but InGNeoSA is definitely an exception"
>
> ***- Master in Vet Med (candidate), Clinician, UVH***



"InGNeoSA is a fun, creative and wholesome approach which allowsindividuals to grasp the fundamental concepts in **companion animal oncology**"

- DVM, Pg. student (MVSc. Candidate)

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Thohira Aquaformula

THE urgency is to supply sustainable and economical animal feeds. This issue is especially for Malaysia's aquaculture and poultry sectors. What is not sustainable is our dependency on imported feed ingredients such as soybean meal, corn, and fishmeal. Increasing costs of these items have further dampened the growth of these industries. Our solution is to produce Thohira; the economical animal feeds with premium quality that improves animal growth and survival.

Formulated with renewable ingredients and powered by high-tech growth promoters, Thohira helps the farmers to grow the foods at low production cost, producing more yields while conserving resources. Thohira provides farmers low-cost alternatives compared to the conventional animal feed that depends on imported feed ingredients.

Aquaformula for Tilapia

The feed is specially formulated with balance nutrients and equipped with high-tech growth promoter to enhance the growth performance of tilapia species. It is one of the most economical tilapia feed in Malaysia with premium quality. Try now, you'll be amazed!

Nutrient Contents:

Thohira AQUAFORMULA TILAPIA	Starter	Grower
Min Crude Protein	32%	28%
Min Fat	5%	5%
Min Crude Fibre	6%	6%
Max Moisture	10%	10%

Ingredients:
Plant proteins, animal proteins, grain by-products, fish oil, palm oil, amino acids, phosphorus, enzymes, vitamins and minerals.

Feeding Rate:
2 to 5 times/day, 4 to 5% of fish body weight

Storage:
Cool and dry condition

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Aquaformula for Catfish

The feed is specially formulated with balance nutrients and equipped with high-tech growth promoter to enhance the growth performance of catfish species (African catfish – keli). It is one of the most economical catfish feed in Malaysia with premium quality. Try now, you'll be amazed!

Nutrient Contents:

Thohira AQUAFORMULA CATFISH	Starter	Grower	Finisher
Min Crude Protein	32%	28%	18%
Min Fat	5%	5%	5%
Min Crude Fibre	6%	6%	6%
Max Moisture	10%	10%	10%

Ingredients:
Plant proteins, animal proteins, grain by-products, fish oil, palm oil, amino acids, phosphorus, enzymes, vitamins and minerals.

Feeding Rate:
2 to 5 times/day, 4 to 5% of fish body weight

Storage:
Cool and dry condition

Aquaformula for Pangasius

The feed is specially formulated with balance nutrients and equipped with high-tech growth promoter to enhance the growth performance of pangasius species (Patin). It is one of the most economical patiin feed in Malaysia with premium quality. Try now, you'll be amazed!

Nutrient Contents:

Thohira AQUAFORMULA PANGASIUS	Starter	Grower	Finisher
Min Crude Protein	32%	28%	18%
Min Fat	5%	5%	5%
Min Crude Fibre	6%	6%	6%
Max Moisture	10%	10%	10%

Ingredients:
Plant proteins, animal proteins, grain by-products, fish oil, palm oil, amino acids, phosphorus, enzymes, vitamins and minerals.

Feeding Rate:
2 to 5 times/day, 4 to 5% of fish body weight

Storage:
Cool and dry condition

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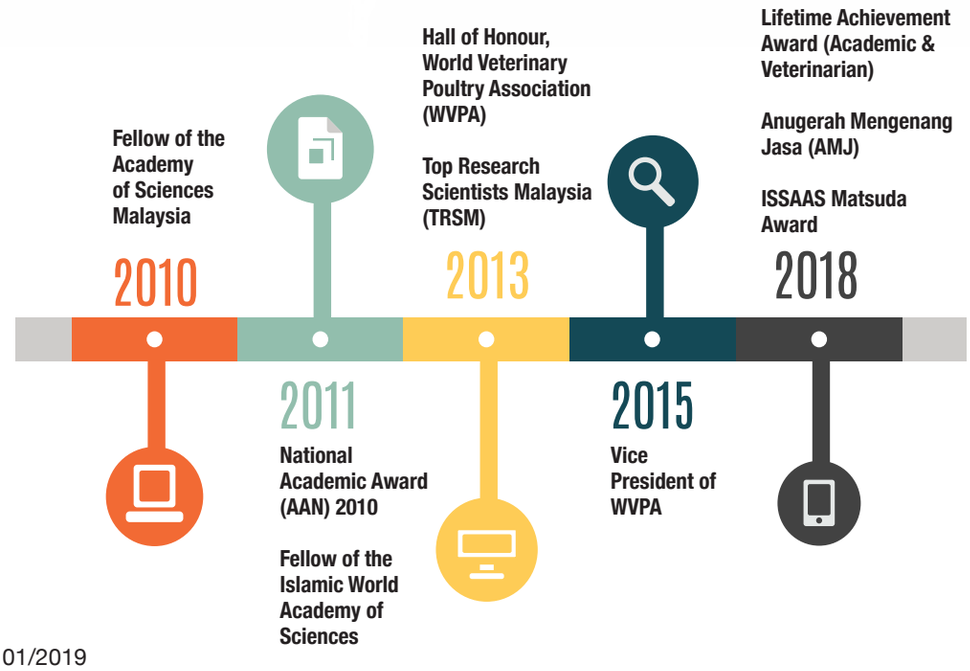
Introduction

Prof. Datin Paduka Dato' Dr. Aini binti Ideris has been the 8th Vice Chancellor of UPM since January 1, 2016. She graduated with a Doctor of Veterinary Medicine degree (1979) from Universiti Pertanian Malaysia (UPM), currently known as Universiti Putra Malaysia, MVSc in Avian Medicine (1981) from the University of Liverpool, United Kingdom, and PhD in Avian Medicine (1989) from UPM. She continued with research training at the University of California, Davis, (1990-1992), and at Cornell University, United States of America (1993), under Asian Development Bank Fellowship. She has extensive administrative experience as she held several administrative positions, such as 9 years as the Deputy Dean Faculty of Veterinary Medicine, 8 years as the Dean of School of Graduate Studies, and 5 years as Deputy Vice Chancellor of Academic and International at Universiti Putra Malaysia (2008-2013).

2018 Anugerah Mengenang Jasa

She gives lectures, conduct practical classes and provides clinical training. She is actively involved in research, studies on development of conventional and genetically engineered vaccines as well as in professional associations. Her research interest is in avian respiratory and immunosuppressive diseases which has led to the development and commercialisation of Newcastle disease and fowl pox vaccines. She is also the co-researcher for infectious bursal disease vaccine. These vaccines are being sold in 19 countries. She plays an important role in poultry health education, training and research, aiding the advancement of the poultry industry in Malaysia,

Timeline Awards and Achievements



improving the health of village chickens, and mentoring many Malaysian avian veterinarians.

In recognition of her scientific contributions, Prof. Datin Paduka Dato' Dr. Aini was elected as the Fellow of the Islamic World Academy of Sciences, Fellow of the Academy of Sciences Malaysia, Founding Fellow of the Malaysian College of Veterinary Specialists, and Fellow of the Malaysian Scientific Association. She received the National Academia Award (AAN) 2010 for the Innovation and Product Commercialisation Award Category in 2011. The pinnacle of her success in 2013 was when she was inducted as the Inaugural Member of the Hall of Honour, of the World Veterinary Poultry Association (WVPA). This is the most prestigious recognition accorded by the Avian Veterinary Fraternity worldwide to outstanding recipients. It is due to her contributions to scientific research, poultry education and training, poultry health systems in developing countries and for her outstanding leadership qualities. In 2015, she became the first Asian to be elected as the Vice President of WVPA. Recently, she received Lifetime Achievement Award (Academic & Veterinarian) at the 2018 Malaysian Livestock Industry Award and also Veterinary Association of Malaysia (VAM) Anugerah Mengenang Jasa (AMJ) from the Sultan of Selangor to recognize her contributions to the association and in bringing the veterinary profession and services to greater heights. She also was chosen as the recipient of 2018 ISSAAS Matsuda Award for her distinguished contribution to the advancement of science, research, and trainings on agricultural development in Southeast Asian region, specifically for her leading role in avian health.

> "Prof. Datin Paduka Dato' Dr. Aini was elected as the Fellow of the Islamic World Academy of Sciences, Fellow of the Academy of Sciences Malaysia, Founding Fellow of the Malaysian College of Veterinary Specialists, and Fellow of the Malaysian Scientific Association."

Professor Dr. Aini Ideris - Our First Homemade Professor

Professor Dr. Aini Ideris is the pride of Universiti Putra Malaysia (UPM) for being the first among the thousands educated in UPM to be awarded with the title of Professor in Avian Medicine in 1996.

Graduated with the degree of Doctor of Veterinary Medicine (DVM) in 1979 at UPM (the then Universiti Pertanian Malaysia), Master's in Veterinary Science in Avian Medicine, in 1981 at the University of Liverpool and Ph.D in 1989 at UPM, she successfully glorifies her professionalism locally and internationally among her fellow avian veterinarians, through her love for knowledge and excitement in her work. She has over 140 publications to her credit and presented her research findings in seminars and conferences, locally and abroad. Her relentless effort and unceasing willingness to trive for excellence and reach greater heights in her career has earned her the honour to be invited as a Guest Editorial writer in the prestigious Avian Pathology Journal.

Born in Kota Baru, Kelantan, a second child in a family of eight of a school teacher-father, she is determinded to provide the best all round education to her 5 children.

Prof. Dr. Aini spares her time unselfishly grooming her colleagues, research partners and assistants to follow in her footsteps and reach even greater heinghts than herself.

In her Inaugural Lecture entitled *"Avian Respiratory and Immunosuppressive Diseases – A Fatal Attraction"* held on 10 July 1999 she attributed her success to her

(see page 2)

First Homemade Professor

ve family members, her understanding , mentos especially ıer Deans Prof. Dr. ıtif, Prof. Tan Sri Dr. Jalaludin, Prof. ıs Dr. Jainuddeen, . Tengku Azmi and sent Dean, Prof. Dr. Sheikh Omar who was the chairman of the lecture.

Prof. Datuk Dr. Sheikh Omar in his speech praised Prof. Dr. Aini's will power and love for work. He also mentioned that the lecture which was held at the Lecture Hall of the Faculty Veterinary Medicine and attended by staff of U and guests all time re

Since 1 Professors h Inaugural l be conducte the faculties responsibili

Get To Know Better

How would you describe about yourself as a researcher and what motivates you?

As a researcher in avian medicine, getting fundamental right is very important. Fundamental is the key to any research, and you must have a lot of information which are correct. Using those information, the fundamental research can be applied to society. In my case, my research is applied to the farmers.

I was motivated to do research in poultry because chicken is accepted by most religions. Good health of poultry is related to food security. In my works, I look into how I can assist the farmers in order to improve and increase food security for the farmers and country. Prevention and diagnosis of disease is important in order to control and prevent diseases. From there, I got involved into vaccine production.

2013 Hall of Honour, WVPA

2018 ISSAAS Matsuda Award

What is the impact of your research output for the nation and worldwide?

The research has applications which are important to poultry industry and food security. Realizing on its importance, the government supported for a vaccine company to be set up and established. We had come out with the first and the only animal vaccine company in the country. Through the company, the vaccine was produced at a cheaper price than the imported vaccines where it helps in terms of economy to the country. The Newcastle disease virus is originally from Australia and we have modified the virus to suit our environment. In terms of the safety and also the efficacy, the vaccine is equivalent or better than imported vaccines, but we make the price cheaper because it is being produced in Malaysia. So that helps in terms of the economy and also poultry farmers. The work we had done is recognized internationally and now the vaccine has penetrated 19 countries in terms of registration and sales. That also contributed to the growth of the economy of our country.

What is the most significant and outstanding award you have received throughout your career?

I have been recognized by the world body, the World Veterinary Poultry Association (WVPA), when I was inducted as the Inaugural Member of the Hall of Honour for my contributions to help the poultry industry. It is at the world level and I was the only Asian at that time.

Nationally, I was awarded the prestigious National Academia Award 2010 (AAN), the highest award for academician, under the category of Innovation and Commercialization of Products. It is for my successful innovation and commercialization of the Newcastle disease vaccine (NDV4-UPM).

What part of this field do you personally find most satisfying? Most challenging?

The most satisfying is to help the farmers. In the beginning, I did a lot of extension works with the farmers by going to the farms, advising the farmers on how to protect their chickens from diseases, and how to improve the productions of healthy chickens. Dealing with the community, is very satisfying because you can see the improvement of poultry production. The vaccine helps to protect the chicken from the diseases which increased the number of chickens being produced. Eventually, the farmers can increase their income and healthy chicken also benefits their own consumption. Working with community/ farmers is very satisfying because I can see the direct effect of what I am doing to the community rather than just being an academician.

I teach avian medicine as a lecturer, and I bring the students once a week to the farms to see various types of chicken farming. Being a clinician, I am being called by the farmers whenever they have problems with the poultry. Now I am not much in the laboratory, but I visit poultry farms from time to time to meet the farmers. The most challenging part is only time management and family commitment. I try my best to manage my time well.

From your perspective, what are the problems you see working in this field?

There is no real problem, because this is the field people are looking forward. The poultry farmers and veterinarians work very closely as they are depending on each other. As I mentioned before, because of the works that I had done for the country and region, WVPA recognized me and

appointed me as the Inaugural Member, Hall of Honour. They also want to make sure the association in Malaysia is expanding. I was the Founding President of the WVPA Malaysia branch. I know many veterinarians are very interested in this field. Within a few years, I managed to gather more than 200 members, compared to branches in other countries. The other branches were established for quite a long time, but their members are less than ours, even for big countries.

Describe some of the toughest situations you have faced in this field.

I have been enjoying my works, researches and community services. Being a researcher and also a clinician, I work a lot with viral diseases and it is not easy to do treatment or preventive measures. Antibiotic cannot be used, so you need to do vaccination to prevent the diseases. I can see the work that I do right from the laboratory until it reached the farmers/community which gave benefits to them.

When I was an active researcher, I spent a lot of time in the laboratory and in the field besides teaching. I trained many researchers. I do a lot of field work and bring many researchers with me to expose them to the real situation. We also went out to other ASEAN countries, not just Malaysia. So it was easy for other countries to accept our vaccines because we have done the test in the other countries too. I have not faced any big tough situation in my line of work.

What kind of experience would you encourage for anybody pursuing a career in this field?

You need to work with the community and give benefits to them. You must be willing to work hard and be very passionate in your work. As a veterinarian, you must always be passionate towards ensuring healthy animals and be understanding with the owners' concerns. You must be willing to spend your time dealing with animals and farmers. I think as a researcher in my area, you need to listen a lot to farmers, then you know what are the problems and issues. And from there, you will get the idea what type of research to do and further enhance the research.

What do you find unique about your career?

There are always new things coming up. So you must spend time reading and discussing with other researchers in your field. That is why as a researcher, you must present your findings to international audience. I encourage researchers to go and present your papers at international conferences. When you present your papers internationally, the researchers in your field will know what you are doing and they also might provide some inputs and ideas to help your research.

The thing that is unique about this field is that it has full purposes. I do a lot of work with viruses especially respiratory viruses. One of the vaccines that we produced is for Newcastle disease. I also helped and assisted young researchers. New research is always coming up along with new technologies. You must always have the information on new technologies. The information and knowledge keep on expanding all the time. When I first did my work, we had to grow virus in many tissue culture flasks just to get enough volume to purify it. Then, molecular biology comes in, we do not need to do that anymore which saves a lot of time. Now, it is nanotechnology. wNew technology helps in making disease diagnosis faster and cheaper to develop it.

What personal qualities do you see as important for success in this field?

In any field, you must be very passionate, dedicated and understand what you are doing. That is the reason I introduced 'We Love UPM'. The symbol is not just for UPM, but it indicates many things. When you love what you do, you will be doing it well. It is from your heart and 'Ihsan' will come in. 'Ihsan' is doing things well whether people look at it or not, but you do it passionately and correctly. And you want to make sure whatever you do, it has to come out at the end with good quality and excellent results. You think about 'Ihsan', you think about 'We Love UPM', and apply that in whatever you do, then you will get the best out of it.

What is your advice to young researchers on achieving their KPI's?

I think researchers should not think about KPI only. KPI can change according to time and situation. It is manmade. You should be comparing and benchmarking with what the other successful people achieved then set your targets. Manage your time well and be a holistic person.

For me, if I just do research and publish papers but I cannot see the impact on farmers, it is not good enough. So, think about the ultimate things that will be good for you and work towards it. Eventually, you will achieve bigger things directly or indirectly such as awards, numbers of publications, and others. Set your goals and look beyond them.

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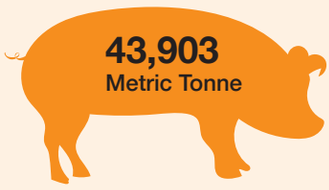
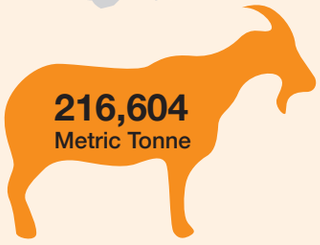
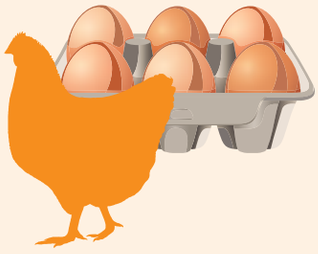
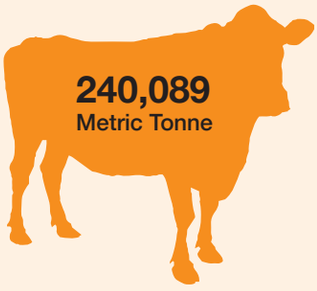
2018
Malaysia:
Estimated Consumption of Livestock Products





1,651,400
Metric Tonne





(*Source*: Department Of Veterinary Services. Malaysia: Consumption of Livestock Products, 2012-2018E, Livestock Statistics 2017/2018, March 2018)

E : Estimate

- Pink fresh
- Firm & Springy
- Odourless

- Bright red flesh
- Firm flesh
- Odourless

- Clean, firm eyes
- Bright red gills
- Firm stomach
- Scale are intact

How to Pick the **FRESHEST** in the Market

(Reviewed by: Assoc. Prof. Dr. Awis Qurni Sazili)

Attitudes of Stakeholders to Animal Welfare During Slaughter and Transport in SE and E Asia

Commencing in April, 2014, this collaborative OIE project between the University of Queensland and Universiti Putra Malaysia, supported by the New Zealand/Australia OIE Collaborating Centre in Animal Welfare Science and Bioethical analysis, aimed to raise awareness of the OIE standards for animal welfare in SE and E Asia. In particular it focused on building capacity for improving animal welfare during slaughter and transport. Funding was provided by the New Zealand, Australian and Malaysian governments, the EU, Word Animal Protection and Universiti Putra Malaysia.

The methods used included providing training in methods to improve animal welfare during slaughter and transport, and conducting research with stakeholders in order to advise future programs and initiatives in the Asia Pacific region. A comprehensive resource package was developed for trainers to use in providing a course on livestock slaughter and transport to targeted stakeholders (n= 1,027) in the slaughter and transport industries across Malaysia, Thailand, Viet Nam and China. Following a 'train-the-trainer' roadshow in these countries by international experts, a total of 103 workshops were conducted by the trainers, with the biggest number being undertaken in China.

In addition the project team developed a 'top 10' learning outcomes message based on the OIE guidelines, translated into the relevant languages and distributed into workplaces on posters. Additional activities also included the development of a project website with fully translated resource packages made freely available (www.animalwelfarestandards.org). Research conducted by the project team has explored stakeholders' attitudes to animal slaughter and transport in the four target countries, with special attention to halal slaughter in Malaysia and identifying the major welfare issues in China.

The project successfully completed its training and research programme activities in the SE and E Asian countries in 2016, which is anticipated to bring about improvements in animal welfare that will increase confidence surrounding livestock transport and slaughter in this region.

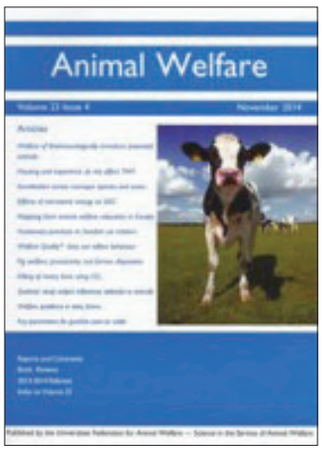
Journal:
Animal Welfare

Authors:
Michelle Sinclair, Sarah Zito, Zulkifli Idrus, Wang Yan, Duong van Nhiem, Pongchan Na Lampang, Clive JC Phillips

Published: November 2017
Volume: 26
Issue: 4
Page: 417-425

> "In addition the project team developed a **'top 10'** learning outcomes message based on the OIE guidelines"

Impact Factor: 1.573, Q1 (2017)



Journal:
Tropical Animal Health and Production
Authors:
Siti Suri Arshad, Kiven Kumar, Gayathri Thevi Selvarajah, Jalila Abu, Nor Yasmin Abd. Rahaman, Ooi Peck Toung, Reuben Sunil Kumar Sharma, Yusuf Abba, Faruku Bande, Bee Lee Ong, Anisah Abdul Rasid, Norsuzana Hashim, Amira Peli, Heishini, Ahmad Khusaini Mohd Kharip Shah
Volume:
50
Issue:
4
Date:
April 2018
Page: 741-752

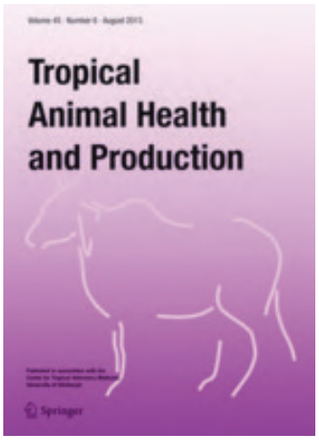
Prevalence and **Risk Factors** of **Japanese Encephalitis Virus (JEV)** in Livestock and Companion Animals in High-Risk Areas in Malaysia

Japanese encephalitis (JE) is vector-borne zoonotic disease that causes encephalitis in humans and horses. It is estimated that approximately three billion people worldwide are at risk of acquiring JE with 50,000 -175,000 cases (Impoinvil et al., 2013). However, some studies showed that although the mortality rate can be as high as 30%, less than 4% of infected people will develop encephalitis during a JEV epidemic (Ricklin et al., 2016). Transmission of JE involves a mosquito vector, particularly Culex tritaeniorhynchus. Pigs and ardeidae birds are the amplifying reservoir hosts (Fig. 1).

In Malaysia, most studies on JEV infection are emphasizing on mosquitoes and humans but none in animals. Clinical signs for JE infection are not evident in the majority of affected animals. Thus, a cross-sectional study was conducted during two periods, December 2015 to January 2016 and March to August in 2016, to determine the prevalence and risk factors of JEV infections among animals and birds in Peninsular Malaysia. A total of 416 blood samples were collected from dogs, cats, water birds, village chicken, jungle fowls, long-tailed macaques, domestic pigs, and cattle in the states of Selangor, Perak, Perlis, Kelantan, and Pahang. The serum samples were screened for JEV antibodies using commercial IgG ELISA kits. The results showed that dogs had the highest seropositive rate of 80% (95% CI: ± 11.69) followed by pigs at 44.4% (95% CI: ± 1.715), cattle at 32.2% (95% CI: ± 1.058), birds at 28.9% (95% CI: ± 5.757), cats at 15.6% (95% CI: ± 7.38), and monkeys at 14.3% (95% CI: ± 1.882).

The high JEV seroprevalence rate (80%) in dogs was similar to the result reported in Japan. This is probably due to the preference and selective feeding pattern of Culex spp. prefers to feed on dogs than cats or human. Pigs showed moderate JEV seroprevalence rate of 44.4% probably due to the location of farms not within paddy field. The chances of

Impact Factor: 0.975, Q2 (2017)



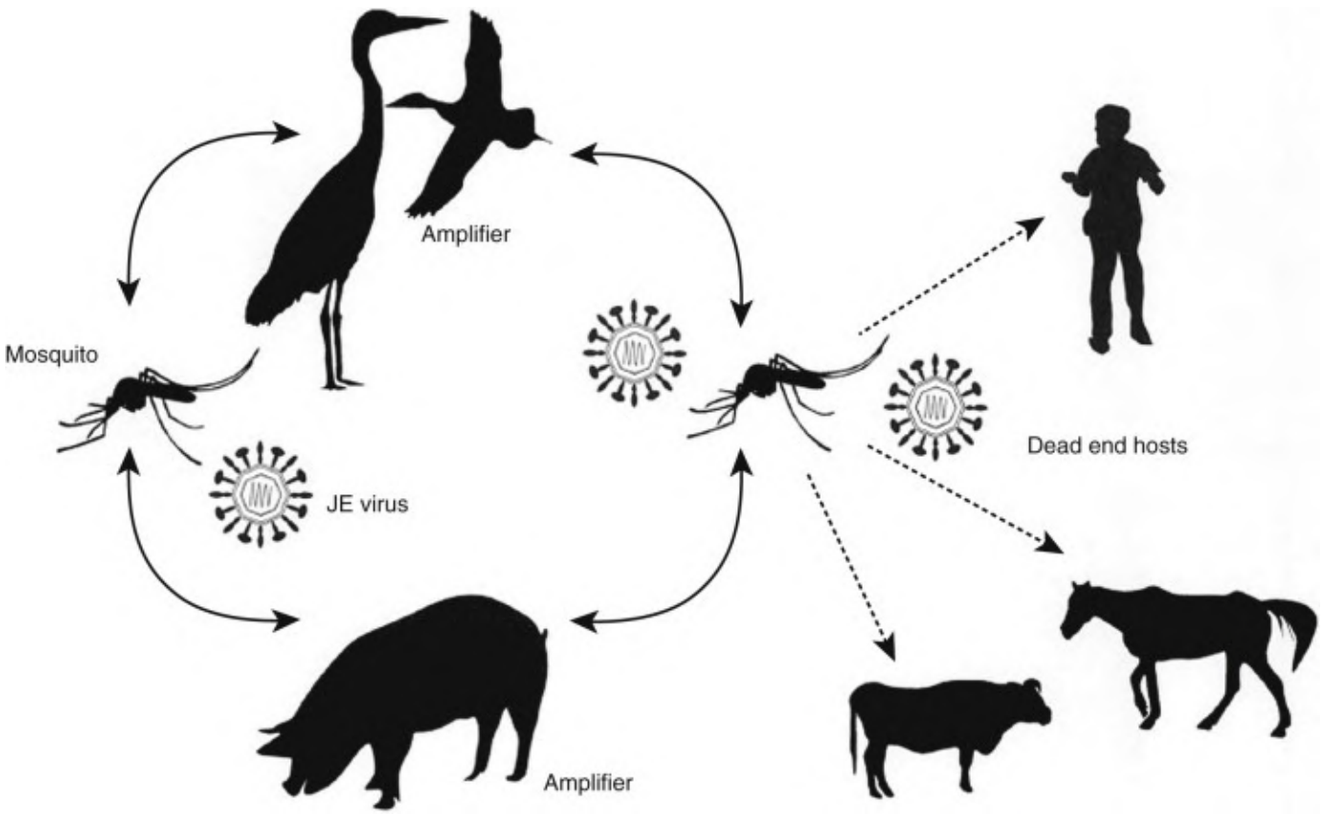
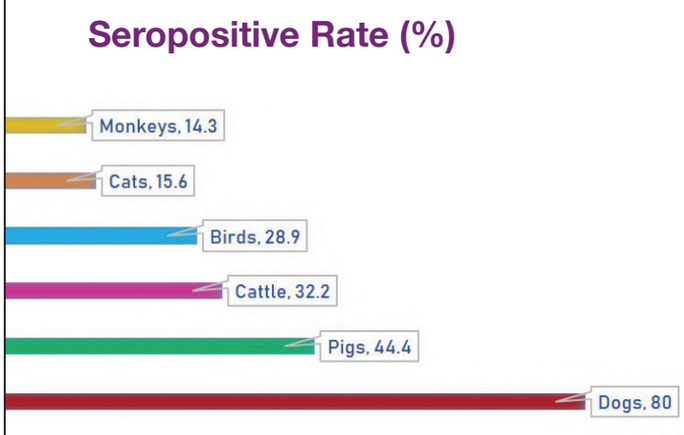


Figure 1: Transmission cycle of Japanese encephalitis virus between amplifiers (pigs and wild birds) and mosquito vectors (especially Culex tritaeniorhynchus), including the infection of dead-end hosts (humans, horses, cattle). Source: World Organisation for Animal Health (OIE, www.oie.int)

JEV transmission through Culex spp. to pigs is less due to the absence of water bodies areas where. Culex spp. mainly breed in paddy field. Cattle had a JEV seroprevalence rate of 32.2%. Several countries predicted JEV infection in humans by determining the percentage of seroprevalence among cattle, goats, and pigs in the country. There is relatively low JEV seroprevalence rate in birds (28.9%) and cats (14.4%). The former finding rather unexpected as the sampling areas are located in the paddy cultivation with numerous water bodies and encompass migratory bird landing sites (Kuala Gula, Perak). This study has provided baseline information in the understanding of epidemiology of JEV infection, transmission, and spread amongst animals. This study demonstrated that most animals in Malaysia are susceptible to JEV infections. Thus, an appropriate preventive measures as well as surveillance system should be in place to provide an early warning in order to contain outbreaks amongst animal populations.



"With Knowledge We Serve" Effective Extension and Reaching Out in Ruminant Livestock Industry of Malaysia

LIVESTOCK industry particularly the ruminant sector has low SSL where 11.41% for small ruminant sector and 23.42% for large ruminant sector for the year of 2017 according to the statistics from Department of Veterinary Services of Malaysia (2018). The main challenges faced by this ruminant livestock industry are related to reproduction performance, management of ruminant livestock nutrition, infectious disease and lack of expertise in the field of ruminant. Holistic management of herd health programme in ruminant farms is the key of success of any farms and in order to implement this strategic collaborations and partnerships are needed for effective and better extension work to reach out to the ruminant livestock stake holders in Malaysia.

A study done by Jesse (2015) stated that only 35% of small ruminant farmers fulfil the criteria of effective implementation of holistic herd health program and majority did not practise due to lack of knowledge and reduced in numbers of reaching out program. UCTC UPM upholds and practises the motto of UPM "BERILMU BERBAKTI" or "With Knowledge we Serve" with the extension programs towards the ruminant farmers together with the Department of Veterinary Services of Malaysia as strategic partnership where Expert Subject Matter of UPM will go hand in hand with DVS Malaysia to meet the stakeholders to transfer and translate the knowledge in UPM to the farmers. The extension or reaching out program plan by UCTC UPM to the farmers is a long term basis as UCTC UPM believes the initiatives must be "Touch, Feel and Grow" (TFG) together with the stakeholders in order to achieve empowerment and not as "Touch and Go" or "Fire Bridget" where there will be no holistic element of reaching out such as close monitoring and continuous improvement towards the stakeholders. This process of effective extension and reaching out according to UPM motto BERILMU BERBAKTI" or "With Knowledge we Serve" will give out great positive outcome on the growth of SSL in ruminant livestock in future and will contribute towards the country Food Security and Safety.

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Karnival Pendidikan **#SmartSelangor 2018**

The Selangor State Government organized Karnival Pendidikan #SmartSelangor 2018 from 10th to 12th November 2018 at Shah Alam Conventional Center (SACC) with the collaboration of the National STEM Movement and the Selangor Public Library Corporation. In conjunction with the event, the Selangor Public Library Corporation has held a Global Science Day celebration with the participation of non-governmental organizations and educational institutions.

Institute of Tropical Agriculture and Food Security (ITAFoS) was invited by the National STEM Movement to participate and given a privilege to be a part of the National STEM Movement pavilion. As a Higher Institution Centre of Excellence (HICoE), with a vision to be a focal point for multidisciplinary research in food security and distinguished provider of education and research in tropical agriculture, ITAFoS also provides a contribution in educational activities and involvement with the community. The head of Laboratory of Sustainable Animal Production and Biodiversity, Assoc. Prof. Dr. Awis Qurni Sazili was the appointee by the National STEM Movement as the Penaung Program - UPM STEM Movement for this event. ITAFoS has invited those interested researchers from Faculty of Veterinary Medicine and Department of Biology, UPM to join and participate in the event.

UPM's booth titled "Life Science" has provided exciting hands-on activities to the kids to attract their interests in science through posters, animals' displays and interactive games focusing on animal anatomy, histology and physiology. Human and animals' organ and bone displays, preserved animals, microscopes observation area for animal organs and insects slides and the "Spinning Wheel of Science" were among the exciting activities provided at the booth. The objective was not only to gain knowledge but also to give the children the opportunity and experience to see how exciting and insightful science is through hands-on and Q&A sessions in a most interesting way. UPM postgraduate students were given the opportunity to get involved and gain experience in teaching and interacting with different levels of the community. The booth had attracted school children, parents and educators from both private and international schools as well as universities in Selangor.

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University Veterinary Hospital

University Veterinary Hospital was established in 1975 by the Faculty of Veterinary Medicine and Animal Science, Universiti Pertanian Malaysia. Its name has been changed several times until November 1996 when the name of the University Veterinary Hospital (UVH) selected. UVH began its operations with an animal clinic and a mobile large animal clinic and laboratory services and has grown to become a well-equipped hospital with outpatient clinics and animal wards with the latest amenities that can offer treatment to a variety of animal species.

The objectives of the University Veterinary Hospital are to:

1. provide animal health and disease diagnosis quality
2. provide a veterinary referral hospital
3. engage in the practice of professional veterinary training and teaching
4. improve service through research, healthcare and animal disease diagnosis
5. contribute to a veterinary hospital management system with environmental friendly

UVH equipped with a variety of diagnostic and laboratory equipment used in a teaching hospital. The equipment is designed for training undergraduate and graduate students. Apart from routine outpatient consultancy, UVH also offers specialized services in veterinary medicine and surgery, imaging and laboratory diagnosis.

UVH has facilities and expertise to treat animals suffering from severe or complicated illness or an animal in need of treatment. UVH also provides the govern clinic for large animals. UVH supports and provides clinical cases and research material for study and research in the Faculty of Medicine Veterinar.

Field supported are:

- Surgery
- Critical Care
- Epidemiology
- Internal Medicine
- Medical and Clinical Therapy
- Radiology & Ultrasound
- Theriogenology and Cytogenetic
- Diagnosis and Treatment of Diseases

MoU between UPM and Malayan Flour Mills (MFM) Berhad

The Memorandum of Understanding (MoU) between UPM and Malayan Flour Mills Berhad was held on 13th August 2018 at the Agriculture Hall, Faculty of Agriculture. The signing ceremony was officiated by YBhg Prof. Datin Paduka Dato 'Dr. Aini Ideris and YBhg Tan Sri Dato 'Seri Utama Haji Arshad Ayub and were witnessed by Mr. Teh Wee Chye and YBhg.Prof. Dr. Abdul Shukor Juraimi, the Dean of the Faculty of Agriculture.

Through this MoU, Malayan Flour Mills agreed to give endowment of 3 million MFM stock units as well as finance the closed house system for broiler chickens to the Department of Animal Science, Faculty of Agriculture. The cost of building this closed house system is estimated at RM500,000.00.

The construction of the closed chicken house is now in line and will be complete by the end of this year. In addition, Malayan Flour Mills Berhad will provide 3 full scholarships for 3 Animal Science students to attend attachments programme at University of Arkansas, USA for one year. The programme will begin in September 2019.

UPM-Farm Fresh ICoE

MALAYSIA - The Holstein Milk Company, via its subsidiary Farm Fresh, has signed a Memorandum of Agreement with Universiti Putra Malaysia (UPM) to jointly establish an industry centre of excellence (UPM-FarmFresh ICoE) to further boost the country's dairy production aspirations and deliver improved farming sustainability through research.

The ICoE - another example of private-public partnership - and which is expected to be ready by February 2018 will be spread out over 60ha of the University Agriculture Park in Serdang and aims to enhance the existing infrastructure of UPM Dairy Units, Teaching and Learning, Research and Showcase.

"We believe our synergies and strengths will enable both parties to efficiently develop this ICoE which will also support the government's establishment of a National Dairy Board envisioned for early 2018," said The Holstein Milk Company's managing director Loi Tuan Ee.

"One of Holstein Milk Company's aim is to provide a direct link between science and practice to enable the livestock sector in Malaysia to become more innovative and to take advantage of new farming practices, technologies and cutting-edge research to deliver greater value to the nation."

According to The Star Online, the research and innovation activities include genetic advances complemented by UPM's research capabilities, required to boost the dairy industry into a modern, viable and sustainable venture in the 21st century.

The RM15mil contribution by The Holstein Milk Company will also be used to develop and transfer technology on dairy farming, as well as production of dairy and dairy-related products.

The knowledge experience and the technology generated under UPM-FarmFresh ICoE Dairy Farm will be used equally between UPM and The Holstein Milk Company to ensure the sustainability of the Centre's operations.

UPM vice-chancellor YBhg Prof. Datin Paduka Dato 'Dr. Aini Ideris said the ICoE will be an excellent teaching and learning centre and encourage UPM students to participate in modern dairy farming which can be very lucrative and offers a satisfying career.

The dairy market in Malaysia is estimated to be worth RM2.9 billion annually.

The signing was witnessed by Agriculture and Agro-based Industries Ministry deputy secretary-general, policy Datuk Mohd Sallehuddin Hassan.

Majlis Apresiasi Penyelidikan (MAP) 2017

2017 Research Appreciation Ceremony

A ceremony to recognize the UPM researchers for their contributions was held at Auditorium Rashdan Baba, TNCPI Office Building on December 10, 2108. Elsevier has been the co-organizer to this event.

Vice Chancellor of UPM, Prof. Datin Paduka Dato 'Dr. Aini Ideris was present as the guest of honor accompanied by Deputy Vice Chancellor (Research & Innovation), Prof. Dr. Zulkifli Idrus. Mr Lydon Tan from Elsevier Singapore also attended the ceremony as the representative of Elsevier. The UPM Commercialised Technology Directory was also launched by the Vice Chancellor during this event. Congratulations and thank you to all the winners and researchers of UPM for their contributions and hard work to upgrade UPM in the national and international affairs.

"What I can see is that UPM has this uniqueness where they are rich in cultures which includes local and international people. UPM has always been **very innovative and they are not afraid to try and will do their best** to compete with other universities with all these publications and innovations – Majlis Apresiasi Penyelidikan 2017"

Lyndon Tan, Elsevier (Head Of Sales, Southeast Asia)

LIST OF WINNERS

Excellent Faculty Award:
- Faculty of Engineering
- Faculty of Biotechnology & Biomolecular Sciences
- Faculty of Science

Excellent Institute Award:
- Institute Of Tropical Agriculture & Food Security
- Institute Of Tropical Forestry & Forest Products
- Institute of Advanced Technology

Best Paper Award (Science & Technology):
- Prof. Ir. Dr. Mohd Sapuan Salit @ Sinon (Faculty of Engineering)
- Prof. Dr. Tan Chin Ping (Faculty of Food Science & Technology)
- Prof. Dr. Halimah Mohamed Kamari (Faculty of Science)

Best Paper Award (Social Science):
- Prof. Madya Dr. Abdul Rahim Abdul Samad @ Iammi (Faculty of Economics & Management)

Research Grantees Award (Industry):
- Dr. Shamshuddin Jusop (Faculty of Agriculture)
- Prof. Madya Dr. H'ng Paik San (Faculty of Forestry)

Research Grantees Award (International):
- Dr. Mohammad Jawaid (Institute Of Tropical Forestry & Forest Products)
- Prof. Datin Paduka Dr. Khatijah Mohd Yusoff (Faculty of Biotechnology & Biomolecular Sciences)
- Prof. Madya Dr. Wan Azlina Wan Ab Karim Ghani (Faculty of Engineering)

Research Laboratory Award:
- Makmal Hematologi Dan Biokimia Klinikal (Faculty Veterinary Medicine)
- Makmal Sintesis Dan Pencirian Bahan (Institute of Advanced Technology)
- Makmal Hasilan Semulajadi (Institute of Biosciences)

Innovation Award:
- Prof. Dr. Lai Oi Ming (Faculty of Biotechnology & Biomolecular Sciences)
- REMDII - Ultra Moisturizing Cream

Research Officer Award:
- Dr. Ismayadi Ismail (Institute of Advanced Technology)
- Dr. Hayrol Azril Mohamed Shaffril (Institute of Social Science Studies)

Excellent RCoE Award:
- Wireless And Photonic Networks (WiPNET) (Faculty of Engineering)

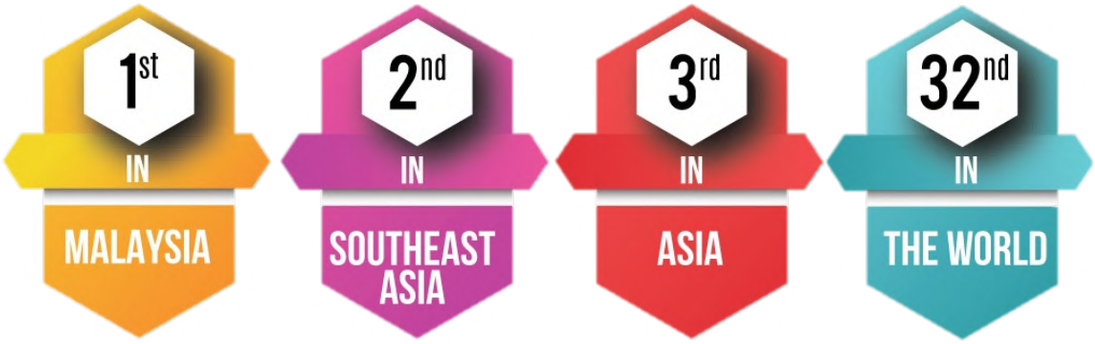
University Journal Award:
- International Food Research Journal (IFRJ) (Faculty of Food Science & Technology)

Chicken Feed Using the Larvae of Black Soldier Fly (*Hermetia illucens*)

SERDANG, Jan 8 – The research team from the Faculty of Veterinary Medicine, UPM will conduct a research on the formulation of feed for free-range chicken (Ayam Kampung) using the larvae of Black Soldier Fly (*Hermetia illucens*). The study will be conducted in collaboration with BETSOL Sdn. Bhd. who awarded a research grant of RM70,000 to the research group. The larvae of *Hermetia illucens* have the potential of being one of the sources of protein in the feed of free-range chickens. The larvae, produced through the bio-recycling process of food wastes, can also help in addressing various issues in food waste.

According to the team leader, Dr. Hasliza, the poultry industry is an advanced industry and guarantees good economic income due to the high demand for chickens and eggs in this country. The current self-sufficiency level (SSL) and the sufficiency of chicken meat supply in Malaysia is almost 100 percent thus, enabling the country to export 54 million chicken and egg supplies to Singapore each year. Other researchers involved are Assoc. Prof. Dr. Azhar Kasim, Assoc. Prof. Dr. Mohd Hezmee Mohd Noor, Dr. Lokman Hakim Idris and Dr. Hafandi Ahmad.

The handover of the research grant check replica was presented by the Managing Director of BETSOL Sdn. Bhd., Jamiah Zainal Abidin to Prof. Dr. Goh Yong Meng who represented the Dean of the Faculty of Veterinary Medicine. The ceremony was witnessed by the Director of Research Management Centre (RMC), UPM, Prof. Dr. Mohammad Hamiruce Marhaban.



UPM Made History, Top 32nd Place in UI-Greenmetric Ranking

SERDANG, Dec 26 - Universiti Putra Malaysia (UPM) secures 32nd best in the world in the rating of UI-Greenmetric, World University Ranking 2018 announced on the 19th December 2018, based on sustainability of green campus and environmental management. The result also leads UPM to be at the third place in Asia, second in Southeast Asia and first within the country for nine consecutive years.

The UI-Greenmetric rating which evaluates environmental sustainability, has more than 40 indicators covering 6 major scopes namely, land size and infrastructure (15%), energy and climate change (21%), waste (18%), water (10%), transportation (18%) and education (18%). The ratings attracted 719 universities worldwide to participate and four Malaysian universities are in top 100 with Universiti Malaya at 36th position, Universiti Malaysia Sabah (71), Universiti Teknologi Malaysia (70) and Universiti Malaysia Pahang (97).

UPM Vice Chancellor, Prof. Datin Paduka Dato' Dr. Aini Ideris commented that the success shows UPM's commitment towards conservation and preservation of the environment through a range of effective environmental management, coaching, curriculum and quality based management systems. "UPM indicated an increase especially in transport and infrastructure indicators such as size and infrastructure of green land size besides efficient use of energy and increase in facilities and use of bicycles on campus," she said.

UI GreenMetric
World University Ranking

SPR Sensor Chip Innovation Helps Early Stage Dengue Detection

SERDANG, Nov 30 - A group of researchers from Universiti Putra Malaysia (UPM) successfully invented a Surface Plasmon Resonance (SPR) Sensor Chip, an innovation that swiftly detects dengue virus at early stages. SPR is an optical device that highly sensitive to any changes in refractive fluid index, including blood and water which make it potential to be an effective alternative optical sensor.

According to Dr. Yap Wing Fen who is the principal researcher from the Department of Physics, Faculty of Science, the highly sensitive sensor chip was developed to combine optical phenomena to speedily detect the virus. He mentioned that early detection is important as there is no vaccine or special treatment to prevent the virus infection at present. The advantages of this product are that it is cheap, easy and convenient to use, environmentally friendly, capable of rapid measurements, durable, high accuracy, high sensitivity and repetitive use and monitors real-time molecular interactions.

The research team is seeking industry partners or donors for collaboration to carry out further research to increase its effectiveness. Further research needs to be completed before the product is fully marketed, adding that the sensor chips could potentially be commercialised worldwide, especially in industrial areas.

The innovation won gold medal in the 'invention, innovation, design exposition' (iidex) 2018, gold medal in Research and Innovation Designs Exhibition (PRPI) 2016, gold medal at the Malaysian Innovation Expo (Miexpo) 2015, silver medal at the International Conference and Exposition on Inventions by Institutions of Higher Learning (PECIPTA) 2017, and bronze medal at the Malaysia Technology Expo (MTE) 2015.

UPM Scientists Appointed as ASM Fellows and Award as TRSM

SERDANG, Nov 1 - Four scientists and researchers from Universiti Putra Malaysia (UPM) were appointed as fellows of Academy of Sciences Malaysia (ASM) while five others were elected as the Top Research Scientists Malaysia (TRSM) 2018. Prime Minister, Tun Dr. Mahathir Mohamad presented the awards to the recipients at the ceremony.

ASM Fellows is awarded to individual with merit, high integrity and demonstrating utmost decorum at all times with essential characteristics of an ambassador of ASM at the national and international levels. Fellowship is awarded based on a stringent selection process in eight disciplines. The four selected as fellows are Prof. Dr Mohd Adzir Mahdi FASc from the Faculty of Engineering; Prof. Dato' Dr Mohd Yazid Abd Manap FASc (*Halal* Products Research Institute); Prof. Dr. Paridah Md Tahir FASc (Institute of Tropical Forestry and Forest Products (INTROP); and Prof. Dr. Mansor Ahmad FASc (Faculty of Science).

ASM are to identify and recognise leading Malaysian scientists and researchers who are actively conducting research and development to generate new knowledge, making discoveries, creating value-added opportunities and producing meaningful and impactful research outcomes that contributes to the nation's socio-economic transformation through TRSM. UPM emerges as second highest university out of the 24 total scientists and researchers elected as TRSM in 2018.

The five elected as the TRSM are Prof. Dr. Abdul Rashid Mohamed Shariff and Associate Prof. Ir Dr Aduwati Sali (both from the Faculty of Engineering); Prof. Dr. Ahmad Zaharin Aris (Faculty of Environmental Studies); Prof. Dr. Rozita Rosli (Laboratory of Cancer Research UPM - MAKNA, Institute of Bioscience); and Prof. Dr. Suraini Abd Aziz (Faculty of Biotechnology and Biomolecular Sciences).

Prof. Dato' Dr. Mohd Hair Bejo, Recipient of 2018 Merdeka Award

SERDANG, Sept 3 – As a recognition for his expert contribution to people, the country and the world, Prof. Dato' Dr. Mohd Hair Bejo, a lecturer and also a researcher at Universiti Putra Malaysia (UPM) was honoured with 2018 Merdeka Award for the Health, Science and Technology category. The award was presented by the Sultan of Perak, Sultan Nazrin Muizzuddin, who is the royal patron of the Merdeka Award. Also present at the event was Raja Permaisuri Perak, Tuanku Zara Salim.

Prof. Hair gives outstanding contribution and instrumental role in advancing efforts towards sustainable food production. The development and commercialisation of chicken disease vaccines in the prevention of Gumboro disease has benefits poultry industry in Malaysia and internationally. Last year, Prof. Hair was awarded the WVPA – Merial Innovation in Vaccination Award for his contribution in research, development and commercialisation of the vaccine of Gumboro disease virus. This virus has caused a high rate of chicken mortality and immunosuppression in chickens in Asia in the 1990s.

In his recipient speech, Prof. Hair said, "This award has given a significant meaning to my research team and all researchers as it increases motivation to convert an idea into an invention, innovation and commercialisation. This award also fosters a culture of excellence and increases a huge opportunity".

SERVICES

UNIVERSITY VETERINARY HOSPITAL

Location: 2.974547, 101.709437

Small Animal Counter

Monday-Thursday	8:15 AM – 4:30 PM
Friday	8:15 AM – 11:00 AM
Friday	2:45 PM – 5.30 PM (appointment only)
Tel. No.:	03-8609 3889/3954/3955

Large Animal, Avian & Exotic Counter

Monday, Tuesday & Thursday	8:15 AM – 4:00 PM
Friday	8:15 AM – 11:00 AM (appointment only)
Tel. No.:	03-8609 3889

ANIMAL ANATOMY MUSEUM

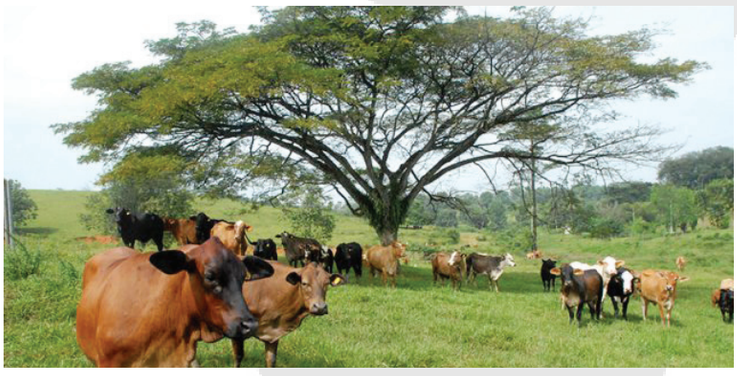
Location:	2.975676, 101.711232
Activity:	Animal Anatomy Exploration | 1 Hour
MyKad :	Adult RM6.00
Non Mykad:	Adult RM9.60

UPM EQUINE CENTRE

Location: 2.981680, 101.735677
Activity: Cowboy World | 45 Minutes
MyKad: Adult RM27.60,
Childs/S.Citizen RM13.20
Non Mykad: Adult RM42.00,
Childs/S.Citizen RM20.40

DEER FARM (LADANG 16)

Location: 2.988813, 101.730556
Activity: Deer Dearest Tour| 40 Minutes
MyKad : Adult RM27.60,
Childs/S.Citizen RM13.20
Non Mykad: Adult RM42.00,
Childs/S.Citizen RM20.40



PUTRA DAIRY (LADANG 16)

Location: 2.988813, 101.730556
Activity: Dairy Tour| 40 Minutes
MyKad : Adult RM27.60,
Childs/S.Citizen RM13.20
Non Mykad: Adult RM42.00,
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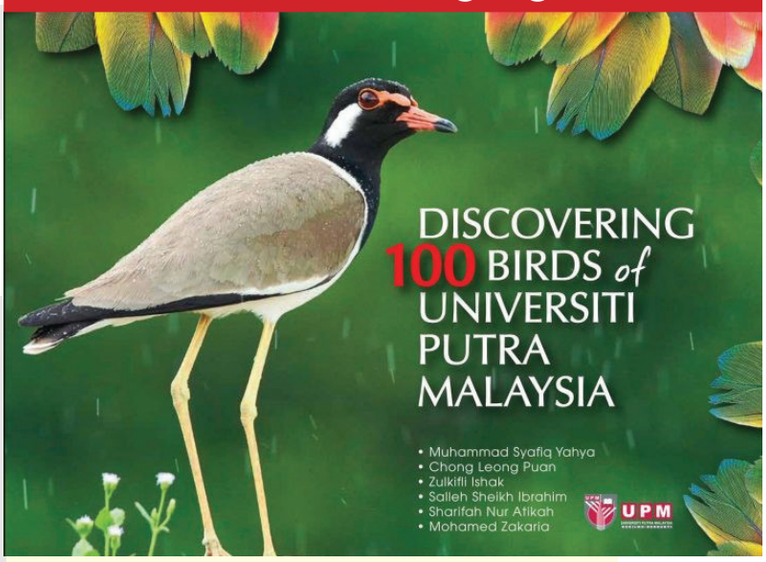

DISCOVERING 100 BIRDS OF UNIVERSITI PUTRA MALAYSIA

Established in the 1970s as an agriculture-based university. Universiti Putra Malaysia (UPM) is one of five research universities in Malaysia. Together, its campuses in Serdang, Selangor and Bintulu, Sarawak cover a total of 3,300 ha of lush greenery. Both campuses consist of farms, plantations, orchards, nurseries, grasslands and forested areas.

With 1,108 ha of sprawling green, the Serdang campus is one of the largest green campuses in Malaysia. A mere 20 km to the south of the capital city of Kuala Lumpur, much of its green space remains even after a series of development in recent decades. It continues to be a conducive environment for learning and teaching. The diversity of land use coupled with the availability of water bodies and forest-farm land ecotone make this pleasing habitat for more than 100 bird species that have been identified and recorded. Besides being a haven for birdwatching and photography in the Klang Valley, this is an ideal site for edutourism.

Tittle: Discovering 100 Birds of Universiti Putra Malaysia

Authors: Muhammad Syafiq Yahya, Chong Leong Puan, Zulkifli Ishak, Salleh Sheikh Ibrahim, Sharifah Nur Atikah, Mohamed Zakaria

ISBN: 978-967-344-681-0

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