



MALAYSIAN SOCIETY OF SOIL SCIENCE (MSSS)

NEWSLETTER

Issue 1, 2021

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2020/2021

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Malaysian Society of Soil Science 50th Anniversary Celebration



Malaysian Society of Soil Science (MSSS)
Golden Jubilee Celebration
Soil is Life
Our Soil, Our Future

Last April, the Malaysian Society of Soil Science (MSSS) celebrated the Golden Jubilee (50 years) anniversary. The organizer community organized the anniversary month celebration in March to highlight the valuable contribution of MSSS members and raise public awareness on the importance of soil. All the programs were held through a Zoom platform and live-streamed on MSSS Facebook due to the pandemic Covid-19. The soft launching of the anniversary month celebration was held on 2 March 2021. The program started with the welcoming remarks by the MSSS President, Dr. Rosazlin Abdullah. The program continued with the opening remarks by the **Director General, Department of Agriculture Malaysia, YBhg. Datuk Haji Mohd Nasir bin Warris**. In his speech, YBhg. Datuk Haji Mohd Nasir bin Warris had acknowledged the contribution of MSSS members and cooperation between the Department of Agriculture and MSSS from the past to increase public awareness on the importance of soil in Malaysia. YBhg. Datuk Haji Mohd Nasir bin Warris also officiated the celebration of the anniversary month. The program continued with the talk by the guest speaker, **Dr. Mohd Khanif Yusop**, the MSSS Fellow and Past President, with the topic **“Enhancing Soil Carrying Capacity for Food Security and Environmental Sustainability”**. In this talk, Dr. Mohd Khanif Yusop highlighted the use of soil to provide food for man survival and a sustainable environment. He discussed the current of arable land, pro-



MSSS 50th ANNIVERSARY CELEBRATION
Director General, Department of Agriculture,
YBhg. Datuk Haji Mohd Nasir bin Warris



MSSS President, Dr. Rosazlin Abdullah

duction and population globally and nationally. He also emphasized the way forward for the enhancement of soil carry capacity. About 250 participants showed their supports by joining this program in Zoom. Some participants also leave their supportive messages and likes on MSSS Facebook.

On 2 April 2021, the program celebration began with the welcoming remarks by the MSSS President, Dr. Rosazlin Abdullah. The program continued with the opening remarks by the **Deputy Minister, Agriculture and Food Industries II, YBhg. Dato' Haji Che Abdullah bin Mat Nawi**. In his speech,



Deputy Minister, Agriculture and Food Industries II, YBhg. Dato' Haji Che Abdullah bin Mat Nawi

YBhg. Dato' Haji Che Abdullah bin Mat Nawi advised to protect the environment besides producing good quality agricultural products via good agricultural practices. He acknowledged and appreciated the efforts needed to protect soil and other natural resources. He also officiated the MSSS 50th Anniversary Celebration.

After that, the program continued with a forum by the Malaysian soil experts from MSSS Honorary member, **Dr. Paramanathan Selliah** and three MSSS Fellow members; **Prof. Dr. Shamsuddin Jusop** (Past President MSSS), **Dr. Ghulam Mohammed** (Past President MSSS), and **Dr. Haji Zin Zawawi Zakaria** (Past Vice President MSSS). This forum brought the topic "**Past, Present, and Future on Soil Science in Malaysia**" which highlighted food security, forest exchange, and climate change. In this forum, Prof. Dr. Shamsuddin focused on food security to increasing food production through land management practices. Meanwhile, Dr. Paramanathan shared how agriculture affects climate change. Next, Dr. Ghulam suggested diversifying the food sources for staple food and not solely depending on rice. He also discussed carbon sequestration caused by soil disturbance and emphasized keeping the ground vegetation to protect the soil. Last but not least, Dr. Haji Zin Zawawi focused on the decline of oil palm production caused by climate, labour shortage, poor soil conditions, and nutrients deficiency. He also suggested the soil scientists look into soil microorganisms and soil acidification which may contribute to the decline of national oil palm production. The sharing of information and opinions given by the panels were very informative and about 350 participants joined this forum. The forum ended after a question-and-answer session.



Khanif Yusop

Guest speaker, Dr. Mohd Khanif Yusop who is as well MSSS Fellow and Past President



Invited panellists in MSSS Forum entitle 'Past, Present, and Future of Soil Science in Malaysia' were Prof. Dr. Shamsuddin Jusop, Dr. Ghulam Mohammed Hashim, Dr. Haji Zin Zawawi Zakaria, and Dr. Paramanathan Selliah with Dr. Norliyana Zin Zawawi as a forum moderator

By: *Dr. Khairun Nisa Kamarudin (UiTM Perlis Branch)*

Nostalgic Photos of MSSS, 1971-2021

For the last 50 years, numerous programs have been hosted and/or co-hosted by the society with other government, NGO, and private agencies such as Malaysia Rubber Research Institute (RRIM), Department of Agriculture Malaysia, Malaysian Agricultural Research and Development Institute (MARDI), with the objectives to share knowledge and news among members in the area of soil science and management.



Group photo during 12th World Congress of Soil Science (WCSS), New Delhi, 1982-Officially opened by Prime Minister of India. Dr. Wan Noordin Wan Daud, as MSSS President at the time have joined the congress together with Malaysia delegates



Classification and Management of Peat Soil, 1984-Opening by Tan Sri Ani Arope

Among activities organized/joined at the national level was the soil science conference, which is held annually, workshops, public talks, soil familiarization tours, 'Soil Fun Run', and exhibitions such as Agri-Malaysian Exhibition.



Workshop on Classification, Characterization, and Utilization of Peat Land, 1986



Gift exchange between Dr. Wan Noordin and Prof. Emeritus Dr. Eric Van Ranst, University of Ghent, Belgium during technical visit to the university

At the international level, a few MSSS members actively participated in international conferences such as the 'World Congress of Soil Science', the Symposium on Plant-Soil Interaction at Low pH (PSILPH), and others. Here are nostalgic pictures of activities and programs hosted/co-hosted by the society.



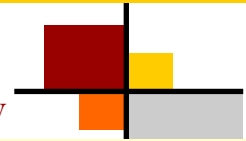
Malaysian delegates 20th World Congress of Soil Science (WCSS), 2014-Jeju, South Korea



Field visit in conjunction with MSSS Conference 2014 Kangar, Perlis

Photo's courtesy of Dr. Wan Noordin Wan Daud.

By: Dr. Wan Asrina Wan Yahaya (UPMKB)



Hidden Meanings Of MSSS's 50 Years Logo



Mr. Khairun Naim Mulana (Behn Meyer (M). Sdn. Bhd.)

In conjunction with the 50th anniversary celebration, the Malaysian Society of Soil Science (MSSS) launched its new anniversary logo design. The logo was designed by **Mr. Khairun Naim Mulana**, who represents the management committee and the society members in both roles. He is currently employed at Behn Meyer (M) Sdn. Bhd. in the position of Product Development/R&D Executive. After several revision and editing stages, the MSSS anniversary logo received official approval from the management committee and was launched on the 2nd April 2021. The logo has been publicly displayed on the society's website, Facebook page, and in letters throughout 2021. We intend to invite all society members, national and global supporters to join us in celebrating the Golden Jubilee Anniversary and participating in all planned activities.

The selection and determination of the logo, as indicated by Mr. Khairun Naim, is based upon society's objectives and achievements, which are contributed by members of the government and by private agencies. Thus, the primary focus is on the agriculture sector from different perspectives in order to improve our agricultural production as well as to respond to the government's call to boost food security. We would like to extend our sincere gratitude to Mr. Khairun Naim for his contribution and support. Once again, congratulations to all committee members for their commitment and wishes all MSSS society members a Happy Golden Jubilee and 50th Anniversary of establishment. We look forward to continuing to work together to encourage the growth of this society and its future success.



By: *Dr. Wan Asrina Wan Yahaya (UPMKB)*

50th MSSS Golden Jubilee International Webinar



Speakers and moderator of the webinar program

Malaysian Society of Soil Science with collaboration of the Food and Agriculture Organization of the United Nations organized an International Webinar titled Strategic Partnerships towards Sustainable Soil Management. This event was held to commemorate the 50 years of MSSS existence as well as to highlight the World Soil Day 2021 theme : **Halt soil**

salinization; Boost soil productivity. It was held online on the 23rd of March 2021 at 3.00 pm local time inviting 2 reputable speakers. Dr. Maria Konyushkova from FAO, a soil salinity expert with 20 years experience in arid and salt affected regions of Russia, Kazakhstan, Iran, Uzbekistan & China. She shared her presentation on "The ongoing and prospective activity of the Global Soil Partnership in Asia". The second speaker was our very own MSSS Fellow, Dr. Wan Rasidah Kadir from Forest Research Institute of Malaysia who gave remarkable insights on 'Coastal mangrove soils in Malaysia'. Dr. Wan Rasidah Kadir has 36 years of experience in soil science and advocates soil sustainability and conservation of saline soils. The event was live in zoom and FB at the given link <https://www.facebook.com/zamir.rasid/videos/10157986816508341>. The event was attended by 210 participants and were well received from all backgrounds. We thank the supporters, speakers, sponsors and the organizers of the webinar in highlighting the importance of sustainable soil management.

By: *Dr. Jeyanny Vijayanathan (FRIM)*

50TH MSSS GOLDEN JUBILEE INTERNATIONAL WEBINAR

Strategic Partnerships towards Sustainable Soil Management

"The Ongoing and Prospective Activity of the Global Soil Partnership in Asia"
DR. MARIA KONYUSHKOVA
Global Soil Partnership
Food and Agriculture Organization
Rome, Italy

"Coastal Mangrove Soils in Malaysia"
DR. WAN RASIDAH KADIR
MSSS Fellow
Forest Research Institute Malaysia
Selangor, Malaysia

Moderator
DR. JEYANNY VIJAYANATHAN
MSSS Vice President
Forest Research Institute Malaysia
Selangor, Malaysia

COME AND JOIN US!

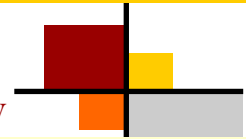
- DATE: 23 MARCH 2021
- TIME: 3.00 PM LOCAL MYT TIME (+8 GMT)
- ZOOM ID: 857 9196 3047
- PASSCODE: msss50year

e-certificate will be provided

Scan me

Food and Agriculture Organization of the United Nations

Poster of the event



MSSS 50th Anniversary Celebration Contests

During the MSSS 50th Anniversary Celebration, the organizer community organized the photo, short essay, and poetry contests to increase public awareness on the importance of soil to humankind, especially among the young generation. With the theme “Soil is Life” and “Our Soil, Our Future”, the secretariat received a lot of participants from talented Malaysian citizens. The contests were started from 2nd to 20 March 2021 and the winners were announced on 2 April 2021. The top five best photos were selected among 66 submitted photos, and the winners were Muhammad Solihin Bin Ramli (UTM), Olivia Tera Anak Snoun (SK Assun), Noor Fairuz Diyana Binti Mohd Fuzi (National Cancer Institute), Atilia Razak (UMT), and Wan Abdullah Bin Wan Yusoff (Soil Enthusiast). The photos were judged by Dr. Wan Zaliha Wan Sembok (UMT), Dr. Rozita Osman (Malaysian Cocoa Board), Dr. Rudiyanto (UMT) and Mr. Isharudin Md Isa (UPM).

Winners of the Photo Contest

PHOTO CONTEST **Top 5**

#16



Healthy soil is necessary for the future of our planet. Location Taken : Johor Bahru
Muhammad Solihin Bin Ramli (Universiti Teknologi Malaysia)

#foursolourfuture



PHOTO CONTEST **Top 5**

#40



Farm in The City, Presint 19, Putrajaya
Noor Fairuz Diyana Binti Mohd Fuzi (Institut Kanser Negara)

#foursolourfuture



PHOTO CONTEST **Top 5**

#59



Soil and joy. LOCATION : ULU SARIKEI | SARAWAK
OLIVIA TERA ANAK SNOUN (SK ASSUN)

#foursolourfuture



PHOTO CONTEST **Top 5**

#48



"Together we are one". Kuala Berang, Terengganu
Atilia Razak (UMT)

#foursolourfuture



PHOTO CONTEST **Top 5**


#32




Cover me more green, less grey and save our future. (Brinchang, Cameron Highlands)
Wan Abdullah Bin Wan Yusoff (Soil Enthusiast)

#foursolourfuture



 **SHORT ESSAY CONTEST**

1st




Dr. Keeran Sundara Rajoo
UPM Bintulu Campus

Title: "When it Comes to Soil, We Should Let History Guide Our Future"

 **POETRY CONTEST**

1st



Dr. Ahmad Badri Muhammad
MAB Environmental Consultants Sdn. Bhd.

Title: "Montmorillonite Clay"

 **SHORT ESSAY CONTEST**

2nd



Jacqueline Binti Joseph
Universiti Malaysia Sabah

Title: "Our Soil, Our Future"

 **POETRY CONTEST**

2nd



Frena Anak Monti Gerai
Sarawak Tropical Peat Research Institute (TROPI)

Title: "Tanah Sumber Kehidupan"

 **SHORT ESSAY CONTEST**

3rd



Nor Aliah Arbain
UiTM Shah Alam

Title: "Our Soil, Our Future"

 **POETRY CONTEST**

3rd



Norziha Ishak
Fresh Graduate from University Malaya

Title: "Sebidang Tanah yang Diperjuangkan"

Meanwhile, three winners were selected from both short essay and poetry contests. For the short essay contest, Dr. Keeran Sundara Rajoo (UPM Bintulu Campus), Jacqueline Binti Joseph (UMS), and Nor Aliah Arbain (UiTM Shah Alam) were selected from 10 participants as the winners. These short essays were evaluated by Assoc. Prof. Dr. Christopher Teh Boon Sung (UPM), Prof. Dr. Che Fauziah Ishak (UPM), and Dr. Samsuri Abd Wahid (UPM). For the poetry contest, the winners were Dr. Ahmad Badri Muhammad (MAB Environmental Consultants Sdn. Bhd.), Frena Anak Monti Gerai (Sarawak Tropical Peat Research Institute), and Norziha Ishak (alumni UM). They were selected from 43 participants and these poetries were judged by Dr. Nur Qursyna Boll Kassim (UiTM), Dr. Affendy Hassan (UMS), and Dr. Syaharudin Zaibon

Winners of the Poetry Contest. Visit our Facebook Page for further reading

(UPM). All the winners won cash and e-certificates. Congratulations!

By: *Dr. Khairun Nisa Kamarudin (UiTM Perlis Branch)*



National Webinar



Winners of the Poetry Contest. Visit our Facebook Page for further reading

In commemoration of the MSSS's 50th anniversary, the organizing committee successfully conducted a national webinar entitled "Biofertilizers recognition and implementation in agricultural crop production", which was held on 16 March 2021 through an online platform. MSSS is expected to play a major role in soil science development as well as to develop and transfer scientific knowledge to ensure the


quality and sustainability of soil and crops. An uncertain climate, combined with poor plant performance, has recently exacerbated soil and plant production. Small growers, in particular, face unreliable crop production in many parts of the agricultural sector, putting pressure on food security. These inconvenient conditions could be solved by intensifying our attention to developing efficient, stable, and sustainable crop production systems. However, the use of chemical fertilizer is increasing, particularly in Malaysia, producing more greenhouse gases, polluting the environment, and squeezing already scarce arable land resources. Aside from introducing the importance of soil, this webinar fosters networking among participants, particularly growers and academics. This event drew 800 participants from a variety of disciplines and professions. The webinar featured four speakers who discussed biofertilizer-related topics:

No.	Title	Speaker
1.	Biofertilizer benefits on soil and crop production	Prof Madya Dr. Amir Hamzir, (USM)
2.	Biofertilizer technology in MARDI	Ms. Fadila, (MARDI)
3.	Alleviation of biostress, enhance crop production	Dr. Mohd Hoiril Azri Ponari, (IIUM)
4.	Biofertilizer utilization among modern farmers	Mr. Muhamad Nazri Lokman, (Edaran NM Teguh Trading)



50TH MSSS GOLDEN JUBILEE NATIONAL WEBINAR

Roles of Biofertilizer in Sustainable Agriculture

<p>Speaker 1</p>  <p>Assoc. Prof. Dr. Amir Hamzah Ahmad Ghazali School of Biological Sciences Universiti Sains Malaysia (USM)</p>	<p>Speaker 2</p>  <p>Mrs. Nor Fadilah Abd Halim Deputy Director of Fertilizer Technology Programme Soil Science, Water, and Fertilizer Research Centre (MARDI)</p>	<p>Speaker 3</p>  <p>Dr. Md Hoirul Azri Ponari Kulliyah of Science International Islamic University Malaysia (IIUM)</p>	<p>Speaker 4</p>  <p>Mr. Muhamad Nazri Lokman General Manager Edaran NM Teguh Trading</p>
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Moderator



Dr. John Keen Chubo
Faculty of Agricultural Science and Forestry
Universiti Putra Malaysia (UPMKB)

Open and free for all!
Come and join us, e-certificate will be emailed to all participants

Date : 16th March 2021
Time : 10.00 am – 12.00 pm (Local MYT +8 GMT)
Venue : Zoom online
Zoom ID : 894 5632 6369
Passcode : msss50year



Scan Me

Poster of the event

The event was live in zoom at the given link <https://us02web.zoom.us/j/81111111111>. We thank the webinar's supporters, speakers, sponsors, and organizers for bringing attention to the importance of biofertilizers and how they affect agriculture. MSSS committee has proposed organizing national webinars on selected topics to share their most recent scientific achievements in the areas of sustainable soil management and crop production. The national webinar offered significant opportunities for in-person information for growers, researchers and other agricultural professionals. This improved understanding will be valuable and can be used as a space to network and absorb information on current research projects. Four main topics were selected for each national webinar session. Moreover, the first national webinar on the use of plant growth promoting rhizobacteria (PGPR), commonly known as biofertilizer for better crop growth performance was held on 16 March 2021. The upcoming event will be updated and will be announced through the MSSS Facebook page and the main website at <http://www.msss.com.my>.

Proposed national webinar topics by Malaysian Soil Science Society (MSSS) in 2021

No.	Titles	Proposed dated
1.	Biofertilizers recognition and implementation in crop production	16 March 2021
2.	Diversify soil conservation strategies in highland farming	TBA
3.	Carbon sequestration effective pathway for climate mitigation	TBA
4.	Adaptation to climate change with gradient soil fertility level	TBA

*TBA–To be announced

By: *Dr. Wan Asrina Wan Yahaya (UPMKB)*



Fertility Status on Different Land Use

Soil fertility is the ability of the soil to sustain plant growth and optimize the crop's yield. A fertile soil will consist of all macronutrients and micronutrients that are needed by the plant to survive. Examples of macronutrients are Nitrogen (N), Phosphorus (P), and Potassium (K), while micronutrients are Boron (B), Zinc (Zn), and iron (Fe). The parameters that can be used as a benchmark for soil fertility include soil texture, soil acidity (pH), organic matter (OM), carbon content, nutrient content and cation exchange capacity (CEC), which have a strong positive relationship with nutrients stored and available in the soil (A. Malik, 2015).

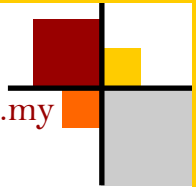


Best Thesis recipient, Siti Nur Mursidah Binti Azis for undergraduate program under supervision by Dr. Syaharudin bin Zaibon.



Soil sampling at Cameron Highlands

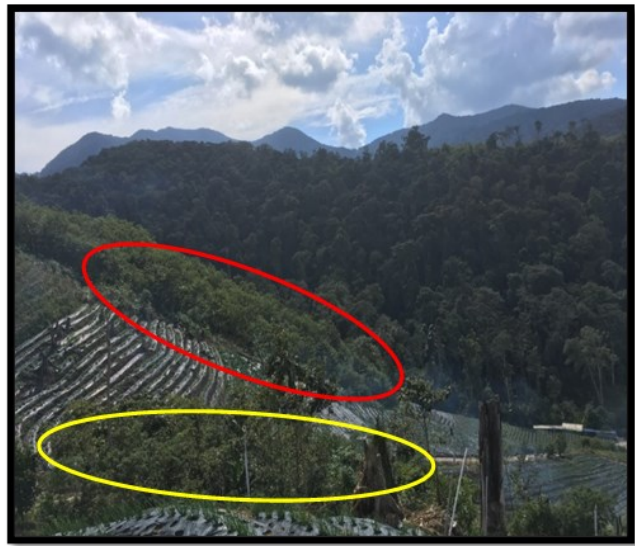
Changes in land use can cause a decline in soil fertility and total carbon and nitrogen stocks. Thus, the objective of this study is to compare the soil fertility status of different land use practices in Cameron Highlands. Soil samples were collected in five different land management areas, namely, forests, cultivation areas, abandoned land, secondary forests and eroded land. The information on the soil properties in such type of management is important as a guide for further management and practices on the soil. The samples were collected at a depth of 0-15 cm (topsoil) and 15-30 cm (subsurface soil) using a soil auger. Soil fertility can also be determined by using the Soil Fertility Index (SFI) and the Soil Evaluation Factor (SEF) formula. The results indicated that eroded land had the lowest SFI of all management types, with the lowest SOM (1.73%) and CEC (4.30 cmol/kg), while surprisingly abandoned land had the highest fertility status, which was most like-



Further studies, especially in aspects of biological properties are needed to evaluate soil conditions related to the microbial and faunal activity on these sites. This study was funded by Jabatan Perhutanan Semenanjung Malaysia (JPSM) and part of “Impact of changes in forest land use on soil fertility status”.



The agricultural land with corn in Hutan Simpan Batu Ganggan



The secondary forest shown in red while abandoned land shown in yellow

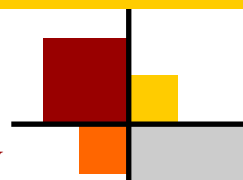


The forest area shown in oval shape



Eroded soil in Hutan Simpan Terla B

By: Siti Nur Mursidah Azis (UPM), Dr. Syaharudin bin Zaibon (UPM).



Earth Pond Fish Culture



The *Tilapia* sp. juvenile during 4 months cultured period

Soil is a basic structure that serves as an earth pond for fish culture. The type of soil has become a major concern in the pond's construction. In fish culture, water sources and the type of soil are the main issues that need to take into consideration. Despite the fact that water is the primary medium for fish culture, water quality has an impact on soils during water management.

The worst water quality is influenced by fish growing during culture in the pond. The primary water quality parameters are dissolved oxygen (DO), pH, ammonia, and nitrite, but other heavy metals elements such as lead (Pb), chromium (Cr), arsenic (As), zinc (Zn), cadmium (Cd), copper (Cu), mercury (Hg), and nickel (Ni) must also be investigated. The presence of these elements will be a major issue due to toxicity and the impact on humans when consuming fish.

Clay soil is the most appropriate type of soil used for fish pond construction. This is due to its ability to retain water and prevent water losses. Unsuitable soils, such as peat and sandy soils, are completely unsuitable for earth fish pond selection due to their high pH and inability to hold water. The earth pond should contain more than 60 % of clay soil. Also, the earth pond should be situated near natural resources such as rivers, hill waters and other water sources not contaminated by agricultural and industrial waste. The use of polluted water sources may have a negative impact on fish culture as well as the water quality of the pond. These pollutants, which include fertilizers, pesticides, herbicides, and chemical toxic waste, are typically discharged by plantations



Conditioning of *Tilapia* sp. fry before releasing to the pond

and industrial areas. In fish culture, the ideal water pH range for fish growth is within 6.5 to 8.5. However, the soil parent material and soil pH have the potential to alter water pH, which correlates to and consequently affects the survival rate and growth performance of the fish during the culture period. Thus, soil pH of the selected pond could be improved through liming application in order to obtain the suitable pH as recommended. Conversely, application of organic matter into soil may reduce the soil pH.



Pond Fertilized by using organic matter during half water fill up



Liming progress due to acidic soil below pH 6.5



Pond fish was blooming with blue green alga after a week



Installation of paddle wheel to increase DO (dissolved oxygen) in the water before fish releasing

MSSS Thesis Award

We are pleased to announce the MSSS Post-Graduate Thesis Award (Ph.D. and Master with research) 2020. The award is given to the PhD or Master with research thesis that has shown exceptional contribution to the field of **soil science** in the period from 01/01/2020 to 31/12/2020. The award consists of a monetary prize to support career development and certificate of achievement.

Postgraduate Thesis Award: An Outstanding Postgraduate Thesis Award of RM 1, 000 together with the certificate of Award will be made to recognize the work of a postgraduate's student who has graduated or anticipates graduating during the current academic year (Jan 2020-December 2020).

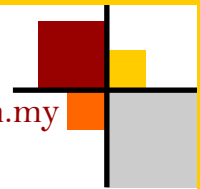


Deadlines:

30 September , 2021

Application/Nomination materials for both awards must include the following:

1. In a single PDF:
 - a. Cover page: Indicate student's name, mentor/advisor's name, degree program name, and title of thesis.
 - b. Student's Curriculum Vitae (including a list of all publications, with those related to thesis/dissertation work marked with an *).
 - c. Student's statement (3 pages or less). The student should concisely describe how their studies provide major new insights and describe their role, including a description of the student's contribution to: development of the concept or hypothesis, experimental design, development of new method's or materials, collection and interpretation of data, and preparation of the document.
-



2. Letters of recommendation from at least two faculty members. The letters should evaluate the importance of the studies within a broadly defined field, the contributions of the student, and should indicate the relationship of referee to student (i.e., advisor, committee member, and/or collaborator). Publications, if any, related to the thesis/dissertation work should be noted.
3. Complete PDF copy of the thesis, along with evidence of the thesis being passed.

All thesis will be evaluated by a Review Committee appointed by the MSSS Management Committee, using the following four criteria:

- a. Selection of the award winning thesis must fulfil the set criteria such as thesis quality in terms of significance of contribution, research, interpretation, writing and innovation of product/process/approach/insight.
- b. The quality of the scientific research and writing within the context of the field.
- c. The quality and capability of the candidate based on their CV and the letter of recommendation.
- d. Part of the research work of the thesis has been published in high impact journal/refereed journal, or won an award in a national or international level.



If the Award Review Committee is unable to identify a thesis of sufficient quality amongst the applications submitted, the award will not be offered.

If the Award Review Committee identifies a number of high quality applications in addition to the awardee, they may offer a “Highly Commended” certificate.

MSSS may publicize successful candidates.

Any queries should be addressed to: soilsciencemalaysia@gmail.com

By: Dr. Mohd Shafar Jefri Mokhtar (UPM)

Playing with the Dirt

Learning soil science as a fundamental subject for all agriculture students sometimes one of the biggest challenges for the lecturer and the students. Its often becomes a tedious work to influence and gain the students attention towards the course. However, this subject can be more interesting when provided with a different mechanism to make this course more enjoyable. A series of exposing the students to basic soil science for research is conducted in Napier Field, Universiti Putra Malaysia, Bintulu Sarawak Campus (UPMKB) on January 2019. It involved seven groups consisting of 70 students from the Diploma in Agriculture Semester 3 (DPT). They are exposed to the use of soil auger as one of the critical tools in soil sampling towards analysing soil fertility and other soil properties. Giving them a chance to play around on different soil depths with the main objective to explain differences between surface and subsurface soil sampling. Besides, offering an opportunity to decide and learn about sampling methodology to capture the most reliable sampling points to represent the area. While augering the soil samples



Observing soil colour using the Munsell Chart



Removing a soil sample from the auger



Obtaining a surface soil sample from the auger

in two different depths (surface and subsurface), the students also learn to use Munsell Chart to determine soil colour. They learn different colours representing different soil characteristics, such as soil sampling near the drain yielding a greyish soil represents insufficient oxygen exchange that contributed to the colour changes. When determining difference soil colour on surface and subsurface, they had concluded the colour becomes lighter in deeper depths compared to surface soil.

Interestingly, all the students became more curious when looking at the demonstration of using the soil auger. They become exciting when trying to insert the auger clockwise and to pull the auger with soil by turning the auger counter-clockwise. Playing with an auger seems to attract their attention when all the group members start to measure the auger height to make sure the sampling is at the correct depth. At the end of this activity, the students become more familiar with using an auger and learning all the skills on identifying soil colour. As in the morning, they only learnt theoretically, which



Group photo after sampling

made them more confused. Conducting a simple field activity may enhance their knowledge and make them more alert with the use of equipment. At the end of this activity, about 42 soil samples (21 surface and 21 subsurface) were gathered and underwent the drying process before soil analysis.

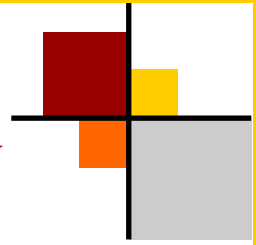
By: Izzah Abd Hamid and Dr. Wan Asrina Wan Yahaya (UPMKB)

Development of An Environmental Friendly Method for Disposing Formalin-Fixed Specimens

According to the Guidelines on Handling and Management of Clinical Wastes in Malaysia (DOE, 2009), pathological waste has been defined as hazardous clinical waste and its current disposal practices in Malaysia is in accordance with the Environmental Quality Act 1974 legislation. Formalin is commonly used to preserve pathological specimens, and incineration is commonly used to dispose of this formalin-fixed pathological waste. However, the practice is costly, can release very toxic substances and its role in disposing of human waste in a respectful manner is still questionable among the local community. Deep burial was considered as a viable alternative because it is a low-cost and Shari'ah-compliant method of disposing of human bodies and pathological waste. Patients and families at Hospital Universiti Sains Malaysia (USM) have been increasingly requesting deep burial procedures in recent years.



Disposal of formalin-fixed specimens for the first time using burial method



Soil sample collection from an area of burial site

up with a better waste management practice for formalin-treated pathological waste for hospitals in Malaysia. The burial method will hopefully be an alternative method to an expensive and toxic incineration method that was used in Malaysia a long time ago.

By: Dr. Musfiroh Jani (UMK)

The measurement for the deep opening in the ground is 7 feet (length) x 3 feet (width) x 7 feet (depth), which is the specification of the dimension that has been hypothesized to prevent unpleasant odors that may encourage animals to access the burial site. Unfortunately, because formalin is a toxic substance, there has been some concern about the deep burial effect of formalin-fixed soil, water, animal and plant quality pre- and post-burial waste on the environment, specifically soil, groundwater, soil, animals, and plants. Therefore, Hospital (USM) Kubang Kerian together with Universiti Malaysia Kelantan (UMK) aim to investigate the effects of deep burial of formalin-fixed pathological waste on underground soil, water, animal and plant quality pre- and post-burial. We hope to establish an understanding on the safety effect of the deep burial procedure in order to come



Soil pH and moisture determination on the burial site

Soil Conditions for Black Pepper in Malaysia



A typical drainage system in pepper farms

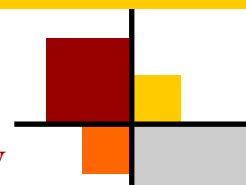
Black pepper (*Piper nigrum* L.) can be cultivated on a wide range of soils in Malaysia. However, deep peat, bleached sand, and podzols are not suitable for planting pepper. Apart from that, soils which have sandy loam texture and are low in chemical fertility as well as poor nutrient holding capacity are also not suitable. Because of excess drainage, pepper vines grown on these soil types could be under water stress during the dry months. Clay loam soils high in organic matter with a good drainage system and pH of 5 to 5.5 are favoured. In Sarawak, pepper is widely cultivated on soils of the Red Yellow Podzolic Group (yellow to red loamy sands to clay) and a lesser extent on Grey-white Podzolic, lateritic, and alluvial soils. A study by the research arm of the Sarawak Department of Agriculture on various soil types have shown that yields are

high on Tarat Series of the Red Yellow Podzolic Group. These soils are known to have excellent characteristics and are porous, friable, and of clay-to-clay loam in texture. Recorded results on the pepper yield were 15 to 20 tonnes/ha/year of fresh berries. However, pepper grown on Semongok Series of the same soil group recorded yields less than 12 tonnes/ha/year and had shorter economic life. These soils have very fine clay texture with massive and compact subsoil, resulting in imperfect drainage and retardation of root development. Another soil characteristic which has a significant effect on the growth and yield performance of pepper is soil moisture. Soil moisture requirement varies depending on soil types. A good drainage system is required when the soil moisture content is above its field capacity. This is to drain out excess water to avoid soil-borne diseases that can harm the roots. Irrigation is needed only when the area experienced longer periods of dry season. Unlike in Sarawak which received abundant rain all year around, some areas in Sabah and northern parts of Peninsular Malaysia will have to establish an irrigation system in order to provide sufficient water for the pepper vines. Hot humid conditions are good for growth but continuing humidity over long periods of time favours the incidence of fungal diseases, such as Phytophthora foot rot.



A sprinkler irrigation system in a pepper farm

By: Kevin Muyang Tawie Sulok (MPB)



The International Union of Soil Sciences (IUSS)

WHY JOIN THE IUSS?

The International Union of Soil Sciences (IUSS) is the global union of soil scientists. The objectives of the IUSS are to foster all branches of the soil sciences and their applications, and to give support to soil scientists in the pursuit of their activities. In addition, the IUSS aims to put soils and soil science on the global agenda. Annual subscriptions from National Soil Science Societies, either directly or indirectly via National Academies, are essential for maintaining a strong presence of the IUSS for effective promotion of soil science and its wide range of applications to fellow professionals, policy and decision makers, and the general public. This is critical to keep our discipline strong and viable and to enhance its visibility and impact in all parts of the world.

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Source <https://www.iuss.org/about-the-iuss/why-join-the-iuss/>

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MSSS Newsletter

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The IUSS song

*It is our life! We call it soil
It is the stuff, in which we toil
From soil we've sprung, to soil we'll go
Protect the soil of this earth so we can grow*

LIFE in the **SOIL**