

## Persatuan Pengguna Pulau Pinang Consumers Association of Penang

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## World Soil Day: Unearthing the Importance of Soil

In conjunction with World Soil Day which falls on December 5, the Consumers' Association of Penang (CAP) calls on farmers, gardeners, and the public to practice a healthy soil management system that will help prevent soil degradation and its complications.

In December 2013, the United Nations General Assembly announced the World Soil Day celebration every December 5, starting in 2014. The reason was to focus on the significance of healthy soils in sustaining a vibrant and robust life, promoting the adoption of sustainable soil practices.

The theme for World Soil Day 2023 is "Soil and water, a source of life". The earth's survival highly relies on the essential interaction between soil and water. These essential components serve as the origins of over 95% of our food.

Soils in Malaysia are highly weathered, acidic, and not very fertile for crop production. Most of their plant nutrients have been leached out due to intense tropical weathering. Soils are typically acidic and have low amounts of organic matter. There are six major groups of soils in Peninsular Malaysia, including marine, riverine, sedentary, reworked, Beach Ridges Interspersed with Swales (BRIS), and organic soils. Soil type location and elevation produce distinctive vegetation zones.

Soil contributes significantly to the agricultural sector by supporting the growth of crops that are essential for our food supply, ensuring our food security. Soil acts as a medium for plant growth, providing nutrients, water, and anchorage for roots.

Soil also provides natural filtration to purify and store water resources. The porous nature of soil helps in removing impurities, sediments, and pollutants, preventing them from entering clean water sources. Healthy soil has a high capacity to absorb and retain water, like a sponge. This ability prevents excessive runoff, especially during heavy rainfall, reducing the risk of erosion and flooding.

Moreover, soil acts as a dynamic environment to support a vast array of life, from microorganisms to insects, which are crucial for nutrient cycling, decomposition, and maintaining ecological balance. Healthy soil also acts as a carbon sink by sequestering carbon from the atmosphere, thus contributing to both climate change adaptation and mitigation efforts.

However, soil faces severe threats from climate change and human activities, amplifying challenges such as erosion, nutrient depletion, and loss of fertility. Climate change has significant impacts on soil health. Altered precipitation and more frequent extreme weather events like heavy rainfall or prolonged drought and rising temperatures will accelerate soil degradation processes, intensifying erosion and nutrient depletion.

Meanwhile, human activities, including deforestation, intensive agricultural practices, and construction, accelerate soil erosion and degradation. These activities disrupt soil stability, exacerbate erosion, and diminish soil fertility, leading to decreased water infiltration and jeopardizing its ability to sustain plant life.

To address these issues, CAP conducts numerous awareness campaigns to highlight the critical importance of soil conservation, and actively advocates sustainable soil management through organic methods. CAP makes compost from garden wastes such as leaves, weeds, and kitchen scraps.

CAP also creates natural fertilizers and produces organic pest repellents. These organic fertilizers and pest repellents play a pivotal role in minimizing agrochemical residue, curbing soil erosion, and preserving soil biodiversity. Training is provided to encourage households and farmers to create their own organic soil enhancers.

CAP's recommendations to maintain soil health are:

- Reducing tillage that will minimize soil disturbance, which helps to retain soil structure and prevent erosion.
- Plant cover crops during off-seasons to protect soil from erosion, enhance soil fertility, and improve organic matter
- Practise crop rotation to prevent nutrient depletion and soil erosion while naturally controlling pests and diseases.
- Apply compost and organic matter to enhance soil structure, fertility, and microbial activity.
- Apply organic mulch such as grasses, leaves, straw, and shredded bark on soil surfaces to retain moisture, prevent erosion, and improve soil structure.
- Avoid agrochemicals such as chemical fertilizers, herbicides, and pesticides to prevent soil degradation and maintain microbial diversity.
- Conserve natural habitats and buffer zones to prevent soil erosion and maintain biodiversity.
- Create terraces or plant crops along natural contours to slow water flow, reduce erosion, and retain soil moisture.
- Practice agroforestry by introducing trees or shrubs in farming systems to enhance soil health, increase biodiversity, and reduce erosion.

We need to spread awareness on the importance of soil. We encourage the public to share information about World Soil Day and its importance. Encourage others to take action to protect our soils.

"Essentially, all life depends upon the soil... There can be no life without soil and no soil without life; they have evolved together." - Charles E. Kellogg.

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