



Minimising Exposure to **Persistent Organic Pollutants (POPs)** Successful Initiatives In Malaysia Consumers Association of Penang (CAP)



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Successful Initiatives in Malaysia

Consumers Association of Penang (CAP)

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Foreword

LET'S MOVE TOWARDS A POPs FREE LIFE

Persistent organic pollutants (POPs) are a group of hazardous chemical pollutants that not only persist in the environment for a prolonged period but leave their cruel impact on the environment and the living things that inhabit it. The impact and severity of POPs is not fully understood by people.

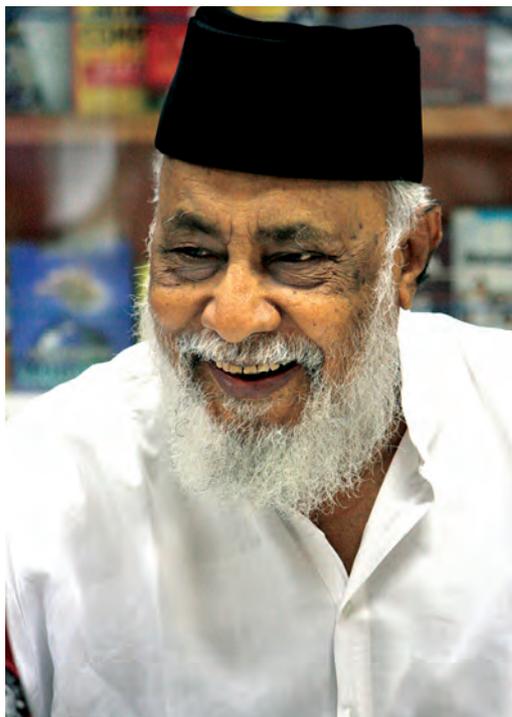
Current modern lifestyle increases the daily exposure to POPs. The layman might not be able to identify POPs, recognize its presence in daily life, or relate POPs to chronic illnesses. The term POPs might be beyond the grasp of most people.

This book attempts to present POPs in simpler terms, identify POPs elements in our daily life and practical ways of minimizing exposure to it.

Malaysians come into direct contact with POPs when they consume food. Excessive use of pesticides, weed killers and other forms of chemicals in Malaysian farms means that each Malaysian gets a share of these dangerous pollutants through the food they consume and the air they breathe. The increase in chronic diseases among Malaysians is ample evidence of this.

While other sources of POPs may take longer to leave an impact on the environment, pesticides and other agrochemicals are speedy in nature. Bearing this in mind, CAP has put in much effort to convert farmers who use agrochemicals into agrochemical-free farmers.

This is a gigantic task as the aggressive promotion of chemicals by agrochemical companies, and successful brainwashing that pesticides are a real solution to the problem of pests, has made a deep impression on many farmers over the years.



CAP, in its endeavour to revive natural farming, has come across farmers who refuse to budge from farming practices that use agrochemicals for fear of losing income.

Attempts to enlighten agricultural officers on this issue has proven to be a daunting task as well, as they too are trapped in a system which indirectly prevents them from freely promoting pesticide-free farming. Farmers interviewed by CAP said chemical fertiliser, pesticide and herbicide companies have spread their wings far and their grip on farmers is very strong. Hence, any action taken to convince farmers to switch to natural farming should be persistent and progressive.

This book contains case studies and activities related to the Consumers Association of Penang's efforts to create awareness about the dangers of POPs. It is our earnest hope that these activities will motivate others to move in the same direction in order to leave behind a toxic-free world for future generations.

S M Mohamed Idris
President
Consumers Association of Penang
December 2014

What Are Persistent Organic Pollutants (POPs)

WHAT ARE PERSISTENT ORGANIC POLLUTANTS (POPs)?

Persistent Organic Pollutants (POPs) refer to highly hazardous chemical pollutants which cause a serious threat to human health and the environment.

Some POPs are pesticides; some are industrial chemicals; and some are unintentionally produced by-products that are formed during certain combustion and chemical industry processes.

POPs are:

PERSISTENT – They resist physical, chemical and biological degradation; travel long distances, resulting in widespread distribution across the earth including regions where they have never been used or produced. They last for years or even decades in the environment before they break down.

ORGANIC – They can enter and affect all living things. They accumulate in the fatty tissue of living organisms which absorb POPs when they eat food, drink water, or breathe air.

POLLUTANTS – They are highly toxic and may cause cancer, birth defects, and damage to the reproductive and immune systems of humans and animals.

WHY ARE POPs PRESENT IN FOOD?

POPs travel through the air, water and soil. They collect in the bodies of living

things and accumulate as they pass along the food chain. Because of this, POPs are found everywhere in our environment even in places far from where they were produced. For human beings, food is a major route of POPs exposure.

POPs tend to concentrate in the fatty tissues of animals and humans that are high on the food chain, reaching up to 70,000 the background levels. This process is called Bio-Magnification.

POPs that accumulate in the human body pose many health hazards. Mothers pass on POPs from their own bodies to their offspring.

STOCKHOLM CONVENTION

In 2001, countries around the world agreed to an international treaty called the Stockholm Convention on Persistent Organic Pollutants. The aim of the convention was to restrict and ultimately eliminate the production, use, release and storage of POPs. Twelve POPs are internationally recognised as needing immediate global action. They are aldrin, chlordane, DDT, dieldrin, endrin, mirex, heptachlor, hexachlorobenzene, PCBs, toxaphene, dioxins and furans.

In 2009, parties to the Convention agreed to add nine more chemicals to the Convention: c-pentabromodiphenylether; chlordecone; hexabromobiphenyl (HBB); alphahexachlorocyclohexane (alphaHCH); betaHCH; lindane; c-octabromodiphenyl ether; pentachlorobenzene (PeCB);

POPs IN YOUR DAILY LIFE

POLYCHLORINATED BIPHENYLS (PCBS) :
PCBs are found throughout your home in the electrical wiring insulation, paint, flame retardants, sealants and your car parts. These toxins are manmade organic compounds that act as immune system depressants and possible carcinogen.



PHTHALATE
compounds can be found in everyday products such as makeup, plastic food packaging, body care products and children's toys. Some phthalates have shown to kill

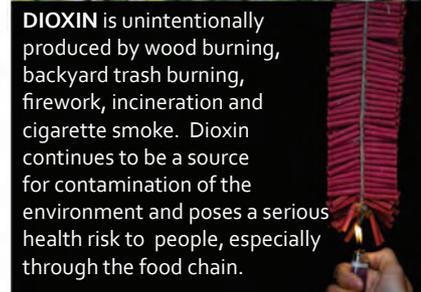
to reproductive issues in humans. Studies are still underway to determine whether these endocrine disruptors are responsible for lower sperm counts in men in the United States over the last 50 years.

BPA-BASED PLASTICS

A semi POPs - Water bottles, sports equipment, CDs and DVDs. Epoxy resins containing BPA are used to line water pipes, as coatings on the inside of many food and beverage cans and in making thermal paper such as that used in sales receipts. This compound is an endocrine disruptor and likely to affect reproductive systems. Scientist have linked it to miscarriages and mental retardation in animals.



Certain pesticides, cockroach chalk, mosquito coil and rat poison are harmful due to its POPs contents.



DIOXIN is unintentionally produced by wood burning, backyard trash burning, firework, incineration and cigarette smoke. Dioxin continues to be a source for contamination of the environment and poses a serious health risk to people, especially through the food chain.

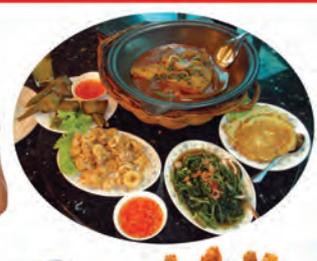
SOURCES OF POPs

FOOD CONTAMINATION

FOOD CONSUMPTION



POP's pesticide sprayed on vegetables are absorbed by the vegetables



Human inhale toxic fume
Factory effluents channeled into the river



Toxic fumes from factory pollute the air and absorbed into the ground through rainwater

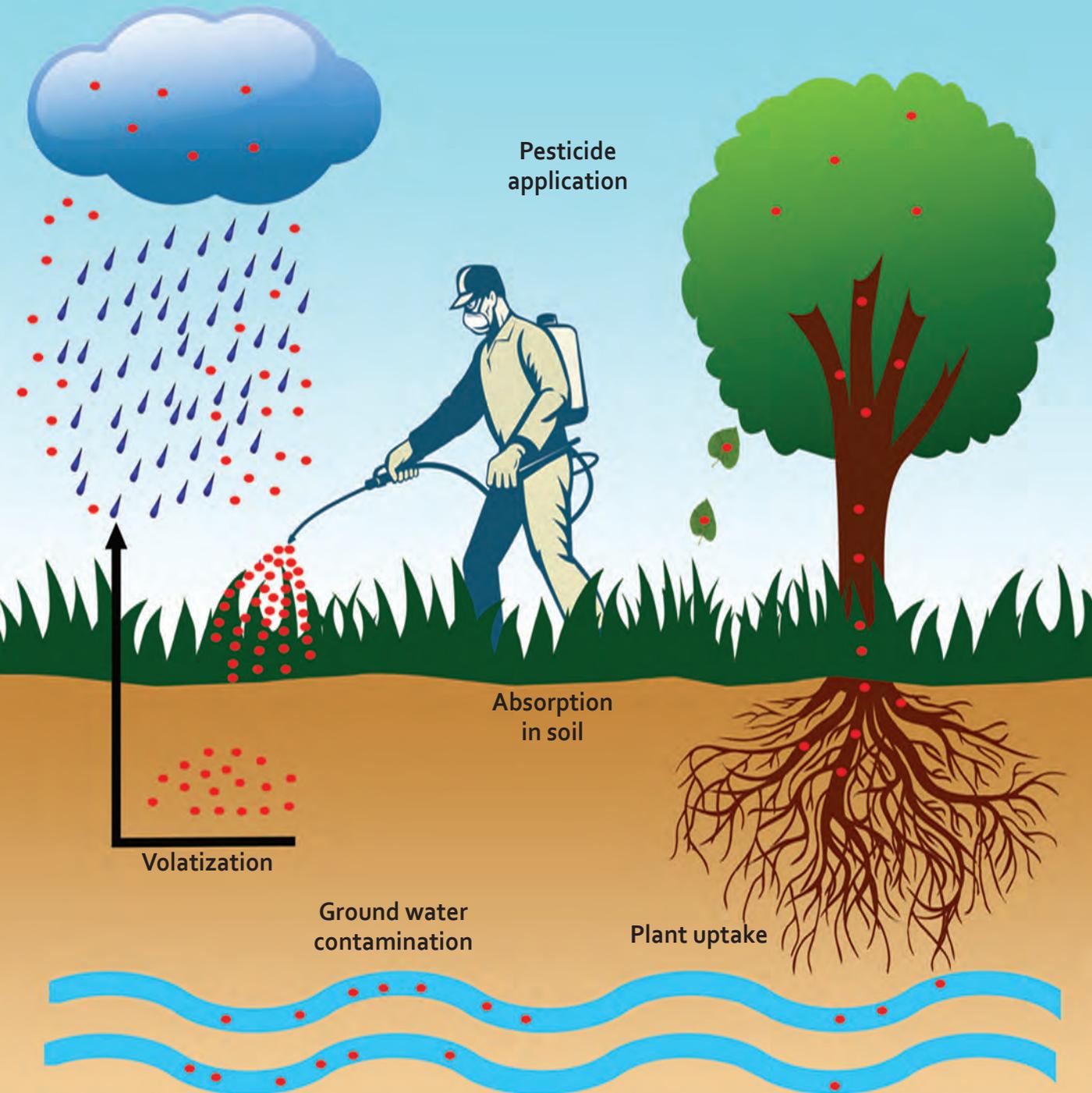


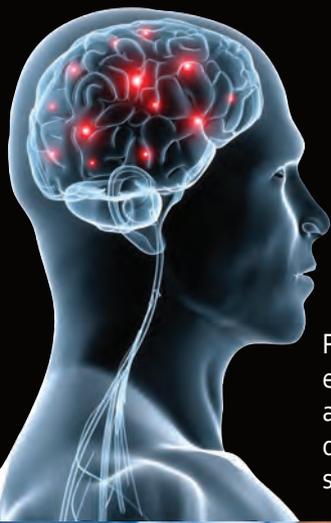
Polluted water poisons the fish we eat



HOW POPs TRAVEL

POPs travel through air, water and soil. They collect in the bodies of living things and accumulate as they pass along the food web. Because of this, POPs are found everywhere in our environment, even in places far from where they were produced. For human beings, food intake is a major route of POPs exposure.

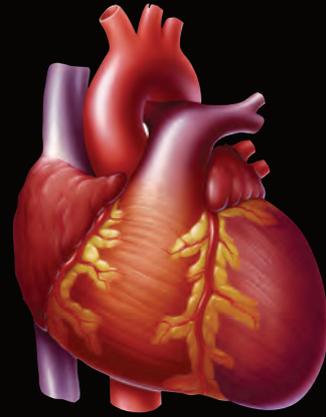




Persistent Organic Pollutants

POPs can disrupt the endocrine, reproductive and immune systems. The developing brain and nervous systems are most vulnerable.

Health Hazards



POPs are environmental toxins that dissolve in fat (lipophilic) and are associated with cardiovascular disease.



A small study from Korea found strong associations between a number of organochlorine pesticides and type 2 diabetes in people exposed to low background level of these substances. Since Asians tend to develop diabetes at a lower body mass index at younger age than people elsewhere, the findings may suggest that Asians are more susceptible to the effects of organochlorine pesticides.



Various effects of POPs on marine mammals have been investigated. In seals and porpoises, researchers found indications that POPs depress the immune system and endocrine systems. The highest concentrations of POPs are generally found in marine mammals and humans, both of which are at the top of the food chain.

POPs can mimic or block testosterone, thyroid, insulin or other hormones. They affect anything in our body that is governed by hormones. The effect of this is higher rates of infertility, miscarriages, premature babies, low sperm counts, abnormal sperm and reduced fertility and abnormal development of male sexual behaviour.

From the mid 1970s the pesticide endosulfan has been aerially sprayed in cashew nut plantations covering several villages in Kerala, India. Eversince, the villagers have been afflicted with different kind of illnesses. Newborns suffered deformity and stunted growth. ENDOSULFAN is an organochlorine insecticide used on crops worldwide, mainly on cotton, coffee and tea. Endosulfan acts as an endocrine disruptor, causing reproductive and developmental damage in both humans and animals. The POPs Review Committee of Stockholm Convention recommended its elimination because of its adverse effects on human health and environment.

Some organochlorine chemicals are likely carcinogenic by promoting the formation of tumours. The International Agency for Research on Cancer identified most of the 12 POPs targeted by Stockholm Convention as presenting a potential carcinogenic risk to humans.



and perfluorooctanesulfonate (PFOS), its salts and PFOS fluoride (PFOSF). In 2011, the parties added endosulfan to the Convention. Governments are to promote best available techniques (BAT) and best environmental practices (BEP) to replace existing POPs while preventing the development of new POPs.

CREATING AWARENESS ABOUT POPs

Persistent Organic Pollutants intentionally

or unintentionally have become part of the lives of Malaysians. Diseases associated with POPs are rampant but Malaysians fail to relate those diseases to POPs.

This book contains case studies on successful initiatives in creating awareness and reducing the use of POPs in the daily life of Malaysians. Various activities to combat POPs at different levels, conducted by CAP in the past two years (2013 -2014), have been covered in this book.

PROTECT YOUR COMMUNITY from POPs



CAP's demo farm



Advocating POPs-free Life Activities of the Consumers Association of Penang

As part of its effort to create public awareness about the dangers of POPs and to encourage people to adopt a healthy, POPs-free lifestyle, the Consumers' Association of Penang (CAP) has been conducting a wide range of activities.

Agrochemicals companies claim that food security is only possible with the use of chemicals, to the extent that it is etched in the minds of farmers and consumers at large that agrochemicals are indeed vital for food production. The truth is, pesticides and weed killers kill the microorganisms in the soil and make the soil barren and reduce productivity.

Only chemical-free farming methods can revive the soil, increase food production and ensure food security. To impart these messages effectively to farmers and consumers, CAP conducts a wide range of

activities. CAP's demonstration farm plays a significant role in creating awareness on natural farming methods. These are some of the things accomplished by and through the demo farm:

Composting and Vermicomposting

Fertile soil has more disease resistance and pest repelling properties and produces better plants. Proper methods of composting results in fertile soil. Vermihome was established to show how vermicast can be produced by releasing earthworms into composted kitchen and garden waste. These earthworms are distributed to farmers, schools and members of the public interested in setting up their own vermicomposting unit. Methods of preparing composting units and breeding earthworms are taught to those interested.



Vermihome : training is given to breed earthworms and produce vermicast





Preparation of growth promoters and pest repellents by CAP to promote healthy farming methods



Panchakavya solution mixed with water and sprayed to plant encourages excellent growth of plants

Preparation of Various Types of Liquid Fertilisers, Growth Promoters and Pest Repellents by CAP in Promoting Chemical-free Farming

Various types of liquid fertilizers, growth promoters and pest repellents needed for proper growth of plants are prepared using locally available resources. This are poured to the soil or sprayed on plants in the demo garden to test their effectiveness and then put for sale.

Details of fertilizers and pest repellents prepared in CAP's demo garden are as follows:

Farmers Effective Microorganism - FEM, Fish Amino Acid (FAA), Egg lime Solution (ELS), Panchakavya (PK), Chili, ginger and garlic paste, neem leaves solution, wood ash, 5 leaves solution, curd and cow urine solution, vermi wash are some of the solution prepared by CAP for this purpose. Calamus, asafoetida, marigold plants are used in managing pest and diseases.

Herbal corner

Apart from vegetable, CAP garden also has at least 30 varieties of herbal plants. The mother plants of the herbs are maintained and saplings are done at



Vermiwash produced by CAP serves as growth enhancer

the nursery corner. These plants are sold to public and given free to schools that start their own vegetable garden.



CAP's herbal corner : different types of herbs can be used in the preparation of pest repellents



Sieving the vermicompost



Recycling kitchen and garden waste : Create your own domestic unit, training for public



Students from SJK Tamil Azad, learning to grow



Composting using plant and fruit waste from farm, Gopeng, Perak



Orang Asli in Tasik Chini, Pahang learning to do pit composting



Teaching composting for students from SJK Tamil Ladang Tupah, Bedong, Kedah



Members of the Penang Hindu Youth Group (HYO) learning pot mixture methods



Composting waste at different hotels in Langkawi



Avoid Burning Compost Waste



Tan Wah San of Banting, Selangor, grows banana on 50 acres of land. After each harvest, Tan used to burn the stuff that remained, and in the process Tan also burned the microorganisms that enrich the soil, hence depleting the soil of its micronutrients.

Each banana plant used to give 1 – 7 kg of banana when it can actually give 12 - 16 kg of banana, which is possible if proper composting is done with the banana waste, according to organic farmer Gopalakrishnan from Tiruchi, Tamil Nadu, India.

“Tan’s farm has an abundance of banana waste which he should not waste by burning,” Gopalakrishnan says.



Learning to compost banana waste

In India, after the harvest season, waste from banana plants is ploughed into the soil and not burned. Banana leaves make good vermicompost as earthworms like to eat banana waste. Tan was taught the methods of composting using banana waste and he is eager to apply the new knowledge on his farm.



Students from schools around Tanjung Karang, Selangor learning about open space composting



Reaching out to urban dwellers - setting up domestic units at home



Boarders of Dhyana Ashram, Kulim, Kedah growing their own vegetables



Albukhary International University, Alor Setar, Kedah - students under the guidance of their lecturer P. John Britto learn about composting garden waste at their university



Treating Soil Problems Naturally

Marigold Plants Treat Nematode Problems

The nematode is a multicellular animal that burrows into plant tissues. Due to this, the stem of the tree discolours, fruits fall off while small, young fruits become crumpled, fruits rot and no new flower will bloom.

When CAP encountered such a problem with passion fruit tree, its staff used marigold plants to solve the problem.

A circle was marked one foot away from the root of the tree and the marked area was dug up. Marigold plants at the flowering stage were collected from the garden, chopped into small pieces, and placed into the pit around the passion fruit tree. Pancakavya mixed with water was sprinkled on it and covered with soil, and



water was sprayed on the entire tree the same day. A remarkable change was noticed on the 15th day: discolouring of the stem had stopped and the plant looked healthier.

Various other methods are used by CAP to treat different plant diseases.

Mulching With Plastic Vs Natural Mulching



Mulching using plastic is popular in Malaysian farms, where, in the end, the plastic disintegrates and gets mixed with the soil, thus degrading the soil in the long run.

Natural mulching enriches and protects the soil. Spreading grass clippings, straw and bark chips around plants prevents weed growth, protects the soil from erosion, maintains soil moisture, and reduces compaction of the soil due to heavy rain.

These same mulches slowly decompose and enrich the soil.



Organic farmer Gopalakrishnan from Tiruchi, Tamil Nadu, India, teaching natural mulching methods which eventually fertile the soil



Participants in Salak, Perak learn to make effective microorganism solutions



Natural pest repellents free from toxic chemicals and smells good



A group from Myanmar learns how to make growth promoter, fish amino acid



A group from Cambodia learns how to make egg lime solution which supplies mineral for plants

Regional Training

Regional training is conducted with the aim of spreading the message of chemical-free living in other countries.

Participants are given input on consumer laws, the dangers of processed food, the variety of persistent organic pollutants in daily life, chemical fertilisers and weed killers, ways of eliminating them, and safe farming practices which are free from pesticides.

So far, groups from Myanmar, Sri Lanka, Vietnam, Laos, Cambodia and Indonesia have participated in these training sessions and have taken the message back to their own countries. Some have successfully applied what they learned in their own country (as told by KanchanaWeerakoon from Sri Lanka - story page 99)



Pancakavya

Popularising POPs-free Growth Promoters

Research Collaboration between AIMST University and the Consumers' Association of Penang

Four students from the Faculty of Applied Sciences, Asian Institute of Medicine, Science & Technology (AIMST) University, Bedong, Kedah under the guidance of Dr Hishamudin Rahmat are doing their final-year research on growth promoters produced by the Consumers' Association of Penang (CAP).



Fish amino acid

NV Subbarow from CAP has been invited to be Field Supervisor for the research collaboration in the area of environmental biotechnology with the university.

CAP guided the students in the initial stages of the preparation of growth promoters and setting up of a vermicomposting unit. The students are doing their study on growth promoters such as pancakavya, egg-lime solution, fish amino acid and vermicompost.



Vermicompost

Dr Sultan Ahmed Ismail, soil biologist and ecologist from Tamil Nadu, India, briefed them



Egg-lime solution

on the research methodology based on the initial presentation by the students.

The research is vital to promote growth promoters nationally. Growth promoters proven scientifically will gain the confidence of farmers and receive national recognition.

Knowledge of Integrated Pest Management (IPM) Vital for Chemical-free Agriculture



*Press conference on pest management by Consumers Association of Penang
N. Selvam, Integrated Pest Management (IPM) expert from Tamil Nadu, India (left)
is invited by CAP to educate the farmers here on the importance of IPM*

Pesticide application is not a solution to the pest problem in any farm. Of the total insects in the farm, only 25% can be categorized as pests. The rest are beneficial insects. Gone are the days when farmers used pest repellent solutions to repel the pests, thus maintaining the ecosystem which in turn increased their harvest.

Farmers are now enticed by the aggressive promotion of pesticide companies to the extent it is ingrained in their minds that pesticides are the real solution to pest problems.

N. Selvam, an Integrated Pest Management Expert from Tamil Nadu, India, was invited by CAP to educate farmers here on the importance of managing pests in a natural way. Selvam visited several farms in Malaysia and shared with farmers information about the importance of enhancing knowledge of pest management, which would later free the farmers from pesticides.

Although the intention of using pesticides is to kill the pests, the same pesticides also lead to the killing of beneficial insects. Such practices lead to soil and plant



Towards pesticide free farming : Malay farmers from Parit 9, Sekinchan, Selangor learn pest management techniques from IPM expert N. Selvam

diseases and decreased yields.

Beneficial insects, also known as predatory insects, such as the spider, ladybird, beetle, and green lacewing, keep the pests under control by eating them. When pesticides are sprayed, these beneficial insects perish first, followed by the pests.

Thus, continuous input of toxic chemicals in the form of pesticides and insecticides in the farms increases the toxic residue in the crops and the flourishing of the pest family through the enhancement of pest immunity.

Continuous input of toxic chemicals in the form of pesticides and insecticides in the farms increases the toxic residue in the crops and the flourishing of pest family through the enhancement of pest immunity.



Organic approach: CAP education officer N.V. Subbarow (right) showing Neeravi some of the organic-grown vegetables at the CAP office premises in Jalan Masjid Negri.

Use repellents instead of pesticides, says green advocate SKM A/9/14

AN advocate of integrated pest management from Tamil Nadu, India, is in town to advise and promote pesticide-free farming.

Neeravi Selvam said pesticide was not a solution for pest problems and farmers should use repellents to repel pests instead. "A balanced ecosystem can be maintained which in turn increases harvests.

"Only 25% of insects can be categorised as pests, while the rest are beneficial insects and are farmers' friends," said the agricultural officer.

He explained that although pesticides killed pests, it would also lead to the killing of beneficial insects such as spiders, beetles and ladybird bugs, which are beneficial insects known as predatory insects that fed on pests.

Speaking at a press conference at the Consumers Association of Penang (CAP) office

recently, Neeravi said farmers should not be enticed by the aggressive promotion of pesticides and expressed hope that farmers would switch to chemical-free farming and learn the natural ways to yield produce.

Neeravi was roped in by CAP to guide farmers in Penang, Perak and Selangor on pesticide-free farming.

CAP president S.M. Mohamed Idris said a survey by the association showed that pesticides were still widely used in farms.

"We should not only be concerned of pesticide residue in the food we eat, but also the widespread of pesticide contamination in the world," he said.

He said CAP hoped that the government would implement regulations to ban the use of pesticides, and formulate policies, clear strategies and provide incentives for farmers to adopt organic farming instead.



The presence of pests is vital for the survival of beneficial insects.

Pesticide spraying kills beneficial insects together with pests. The death of pollinators affects food production.

We have a myriad ways of increasing the number of beneficial insects. For instance, plants with yellow flowers attract beneficial insects to a farm.

In chemical-free farming, pests are not killed with pesticides but repelled with pest repellents. Such a practice weakens the pests and eventually these pests



become easy prey for beneficial insects. Hence, farmers should learn to prepare their own pest repellents and use them to control pests.



Rampant use of pesticides in Malaysian farms makes the soil barren

Incessant spraying of pesticides leads to the depletion of beneficial organisms in the soil. This makes the soil barren and leads to the survival of detrimental organisms. Pesticide residues are channelled into the river or absorbed into the soil causing groundwater contamination. Also, air is filled with toxic pollutants causing numerous health problems for human beings and other living organisms.

Towards POPs-free Lifestyle Repel Pests Naturally

CAP in its bid to eliminate POPs chemicals from Malaysian's life, creates awareness on the dangers of pesticides used in the farm and other household chemicals through its educational programmes. This programme was conducted to wide range of group.

Farmers are thought through demonstration how to make their own natural pest repellents and growth promoters. Housewives are alerted on the dangers of household pests and natural remedies are demonstrated to them.



CAP's President S M Mohamed Idris at CAP's chemical free demo farm



Create awareness at early age - Students from SJK Tamil Perai learning to make pest repellents



Women at Lubok Nibong, Marudi, Sarawak, learn to make the farmers effective microorganism (FEM) to be used in their farms



Using neem to repel pests in farm - training for participants from Indonesia



Pest repellent and growth promoters work wonders in preventing pest attacks and plant disease



Fruit flies are drowned in salted fish-soaked water



salted fish

Repelling Fruit Flies through Salted Fish Soaked Water

Reviving natural methods of repelling pests and spreading it among farmers is vital in phasing out and eliminating pesticides. The method in the picture is used to kill the fruit fly naturally. Quarter of the bottle is filled with water and salted fish is added into this. Holes are made on the top part of the bottle, which is then hung in the farm. Upon getting the smell of the salted fish, fruit flies enter into the bottle through the holes and get drowned. This way plants are saved from fruit fly attacks.



Participants are urged to repel household pests the natural way

Repelling Household Pests - the Natural Way

Aerosol is widely used in Malaysian households to kill household pests. In CAP's training session, participants were alerted on the hazardous effects of aerosol to human being and environment and how to repel pests naturally without using toxic chemicals.

For example, calamus root can be used to repel cockroach. Thick solution of bicarbonate soda, white sugar and water placed at cockroach infested areas attract and drown them.

Neem oil rubbed on the exposed body parts repels mosquitoes due to



Some of herbs that can be used to repel household pests

its pungent smell. Smoking dried neem or lagundi leaves repel mosquitoes. Spreading turmeric powder at ant's nest repels ants because ants are averse to the smell. Cucumber peels can be used in the same manner.



Creating Awareness of POPs

The presence of Persistent Organic Pollutants (POPs) in our daily life has become so pervasive that there is an urgent need to raise awareness of this. Since women play the role of decision maker regarding what to buy for their family, CAP focuses on educating them about the danger of POPs.

CAP gathers women's group to give them information about POPs and its impact on their daily life, and pamphlets related to the topic are distributed to women.



Creating awareness on persistent organic pollutants (POPs) and conducting relevant activities

take-away, even when packing hot food.

Environmental scientists warn that tiny amounts of synthetic chemicals which are used in the processing, packaging and storing of the food we eat can leach, interact and cause long-term damage to our health.

People at times set fire to mixed garbage. Burning of garbage which contains plastic and rubber can release toxic chemicals and gases such as dioxins into the environment.

CAP has always been urging consumers to avoid placing hot food and drinks in plastics or cooking food with plastic ladles or storing hot food in plastic containers, sheets, liners or bags. There are many options available such as glass, ceramic and stainless steel in which to store or heat food. There are also traditional wrapping and liners for cooking such as leaves and cotton or linen cloth.



Students from Methodist Girls School (MGS) distribute bags created by them to the market-goers at the Penang, Pulau Tikus Market

Cloth Bags instead of Plastic Bags

Students from SMK (P) Methodist in Penang distributed about 100 cloth bags made from old t-shirts to market-goers in Pulau Tikus and Bayan Baru recently.

The initiative was by the school's Green Club in collaboration with the Consumers Association of Penang (CAP). The project was aimed at educating market-goers about the dangers posed by plastic bags to the environment and providing an eco-friendly alternative for shoppers.

Malaysians still use a large number of plastic bags daily. Plastic bags are non-biodegradable and when they are thrown away, they pollute the environment.

By reusing old t-shirts and turning them into cloth bags instead, we can reduce pollution and also the amount of waste going to the landfills.

Apart from distributing the cloth bags and pamphlets on plastics pollution, the students also demonstrated how easy it was for people to make their own cloth bags from old t-shirts.



Students from Methodist Girls School (MGS) distribute bags created by them to the market goers at Penang Bayan Baru Market



Consumers Association of Penang's staff with carry bags made from old T-shirts

Monoculture Vs Plant Diversity

The extensive monoculture practices have exhausted the land of its vital nutrients leading to soil infertility followed by plant disease and pest attacks.

Introducing multiple cropping and intercropping on the same soil for each season refurbish the soil and reduce the chances for diseases. This further helps in the revival of plant diversity.

CAP has been continuously introducing different plants in its demo farm and educate consumers that diversity lead to sustainability.

Seeds derived from such planting are saved in seed corner as a way of popularising it among consumers.

The pictures here show some of the vegetables cultivated at CAP.





Plants Experimented and Harvested at CAP





Avoid plastic pots. Growing and spreading beauty is possible using discarded materials. CAP promotes recycling of discarded materials into useful things



Pancakavya promotes healthy and uniform growth of bananas

Eliminating Toxic Chemicals in Different Ways



Seed saving to promote seed freedom and avoidance of hybrid and chemically-treated seeds



Chemical-free vegetables grown at CAP

Instilling POPs-free Messages in Schools

CAP has extended its POPs elimination activities to various primary and secondary schools. Activities have been conducted throughout the year in four schools as follows:-

SMK Sungai Nibong, Penang

Special needs children from SMK Sg Nibong, Penang involve in growing roselle and vegetables such as okra, brinjal and turmeric. CAP guided the teachers and students to grow the vegetables without the use of chemicals.

Teachers from this school earlier attended CAP's training on natural farming and carried and imparted this knowledge among the students. The special need children eagerly participated in compost making by using school's garden waste. Roselle cultivated by the school unit are converted into nice tasty roselle juice which are then sold to parents and other teachers.

SMK Methodist Girls School, Penang

The school collects old newspapers, electronic waste, medicine, batteries and send it for recycle, converts old t-shirts into carry bags aiming to reduce plastics, turning organic waste into compost and vermicompost.

School's garden and canteen waste are collected and composted. Coffee bean waste collected from nearby restaurant is used in composting. When the compost gets matured the students transfer it to vermicompost units. Students take turn to look after the vermicompost unit by checking the earthworm growth, water level, vermicast and maintaining compost level.

Compost, vermicompost and vermishash produced by the school are used in herbal garden and vegetable corner and the excess vermicompost are sold to school teachers and parents.

SMK Polo Ground, Penang

The Special Education Unit at SMK Polo Ground cultivates mushroom as their school project for the Special Needs children. The used mushroom kits are then used for composting with the guidance of CAP.

Mushroom kits take long to break down. Hence, to speed up the composting process, children were taught to make Farmers effective microorganisms (FEM) using papaya, banana and pumpkin with eggs and brown sugar. This solution helps to speed up the composting of mushroom kits. Fully matured compost then used by the unit in their garden and for papaya trees. After successfully



Special needs children from SMK Sungai Nibong, Penang setting their own composting unit

producing compost the students were thought to set up vermiwash unit in their school. The school now able to produce their own compost and vermiwash which are used in their garden.



SMK Padang Polo, Setting vermiwash unit in their school



Students from SJK Tamil Perai plant their own vegetables

SJK Tamil Perai

SJK Tamil Perai, a primary school collects newspapers, plastic bottles, cans for recycling. The students from this school were guided to recycle organic waste from the school canteen and garden waste.



Students from SJK Tamil Perai preparing their own farmers' EM using locally available fruits

The school built two partition for composting unit and collects all the garden waste and dumps it into the pit. The students take full responsibility in the compost pit maintenance. Later a vermicompost unit was set by the students under CAP's guidance. Compost and vermicompost are used in the vegetable garden in the school.

The school has a herbal corner with more 10 types of herbal plants. Later a vegetable corner was developed and students started growing cucumber, ridge gourd, okra and brinjal.

Students also learned to prepare growth promoters such as farmer's EM and fish amino acid. Cow dung and cow urine are used in compost preparation. Vegetables cultivated in the school are used in food preparation in school's canteen.



Students from SMK Sungai Nibong came with own idea : preventing snail attack by blocking the plants with recycled plastic bottles



Composting by special education students, SMK Padang Polo, Penang



Students from the Methodist Girls' School, Penang, learn about the role of earthworms in making the soil fertile



Starting young : Creating environmental awareness



Love nature activities for students from SJK (C) Hun Bin, Penang



Web Game : Understanding the Web of Life and the Effects of POP's on Our Health

To understand the impact of POPs, we first need to understand the food chain. CAP introduces a web game at its training sessions to make participants understand the food chain.

Pictures of various organisms, plants, animals and energy sources are clipped to the clothes of each participant. Strings are then passed from one participant to another to show the food chain. This demonstration is used to make participants understand how specific plants and animals depend on the other for food, and thus the importance of protecting every species on earth.

The very act of spraying pesticide kills not only the pests, but also other organisms which are beneficial to the soil. This game points out how human activities disrupt the flow of the food chain and how it leads to the bioaccumulation of POPs in humans and mammals that are high in the food chain.





Catering to a Chemical-free Life
Ahmad Kamal bin Mohd Ali
Shah Alam, Selangor

Ahmad Kamal bin Mohd Ali's encounter with agriculture can be traced to his work in the biggest plantation in Malaysia 30 years ago. After five years, he resigned and started being involved in humanitarian work in war-torn regions in Bosnia, Afghanistan and Sri Lanka.

He noticed one thing in common in these countries: The communities that practised natural farming did not suffer as much as those that did not – for their food supply was never exhausted. They survived because they possessed their own traditional agricultural knowledge.

That is when it struck him that food security is of utmost importance to any

country. His work experience in Friends of the Earth (SAM) and the Consumers Association of Penang gave him an opportunity to enhance his knowledge in agriculture and food security and his association with agriculturists and environmental scholars made him re-evaluate his knowledge and experience in farming.

Mingling with farmers, pesticides, chemical fertilisers and agriculture were intricately woven traps from which farmers had difficulty extricating themselves.

In addition, mingling with farmers made Kamal noted that pesticides, chemical fertilisers and agriculture were intricately woven traps from which farmers had difficulty extricating themselves. That's when he realised that reviving traditional farming methods and popularising it

was one way of freeing farmers from the shackles of chemical fertilisers and pesticides.

Kamal travelled to many countries to learn about natural farming practices and has since been involved vigorously in advocating chemical-free farming methods in Malaysia.

He says that India has a vast knowledge of traditional farming methods, and that the best part of it is that the Indians generously share their knowledge with whoever comes with such longings.

Cow dung is an essential part in traditional farming in many countries. Since Malay farmers have sort of an aversion to cow dung, Kamal introduced an indigenous microorganism formula prepared from a variety of fruits and herbs. Other methods like fish amino acid, bokashi and mudballs were also introduced to natural farming enthusiasts and farmers who want to revert to natural farming practices.

Kamal has initiated the kitchen garden concept in villages. But, he admits, it is not an easy task as very few have taken it up. However, those who have done so are successful.

Kamal has collaborated with several universities in Malaysia and through his efforts, bio-pest repellent centres have been established in Sibu in Sarawak, Ranau in Sabah and Kota Tinggi in Muar, Johor.

Of all the places where he has worked to promote natural farming, Bukit Cherakah, Selangor, has proved to be the

most successful. Here several farmers and housewives have established their own chemical-free farms and home kitchen gardens.

Kamal also admits that his efforts have ended in failure in several places. "In promoting chemical-free farming we have to be persistent. People are drowning in chemicals, and to pull them out from this mire takes time and persistence. Pesticide companies sniff at our activities all the time, and go to any extent to pull their customers back," explains Kamal.



Ahmad Kamal talking about the future of natural farming during CAP's workshop

Kamal is also playing a role in the Malaysian Institute of Sustainable Agriculture initiated by the Prime Minister's Department in 2013. The institute is designed to impart sustainable farming among the younger generation and Kamal is part of the group designing natural farming activities for students.

Kamal views his work in liberating people from the grip of dangerous chemicals as his experiment with truth. Realising the significance of food security, he is determined to expand his activities on this path.

"Farmers in Malaysia are facing a tumultuous time. The soil has been badly damaged and if they want to come out of this adversity, they have to revert to natural farming practices," warns Chan Loy Onn of Shah Alam, Selangor.

Chan has travelled far and wide to learn about farmers' problems and has been continuously contributing articles in local Chinese dailies on successful organic farming initiatives in other countries and the trend of farming in Malaysia, thus spurring Malaysian farmers to reassess their current farming practices. His articles in an agriculture magazine, *Agro World*, speak volumes on this.

"Farmers keep lamenting about the unpredictable rain pattern, drought, pest attacks, soil infertility and so on, not realising that their very act of throwing chemicals in the soil has exhausted the soil of its nutrients and the soil has now become the abode of pests and contributes to weather changes.

"Farmers know that farming methods using agrochemicals lead to global warming but they just shrug it off," says Chan.

According to Chan, farmers have started to realise that no pesticide, chemical



"Only Chemical-free Farming Can Save the World"

Chan Loy Onn, Shah Alam, Selangor

fertiliser or weed killer can solve their problems.

"Current virus attacks on banana, papaya and dragon fruit are not a problem of the plant but of the soil. The soil has been depleted of its nutrients to the extent of making space for the proliferation of certain bacteria and viruses that damage the plants.

"Reviving such soil is no easy task,



Organic Farming Research Station for The Vegetable Farmers Association of Pantai Selangor was formed to promote chemical-free farming

especially with the diminishing natural farming knowledge among the new-age farmers. That is why we rely on the import of food crops and the ensuing price hikes burden the consumers," explains Chan.

Chan predicts that food scarcity is inevitable if farmers refuse to budge from chemical-intensive farming methods.

"One section in society, realising the future of organic farming, has silently started doing composting on a large scale and putting into practice natural farming methods but it refuse to reveal its methods to the public, lest it creates competitors. Such an attitude is a by-product of industrialisation," laments Chan.

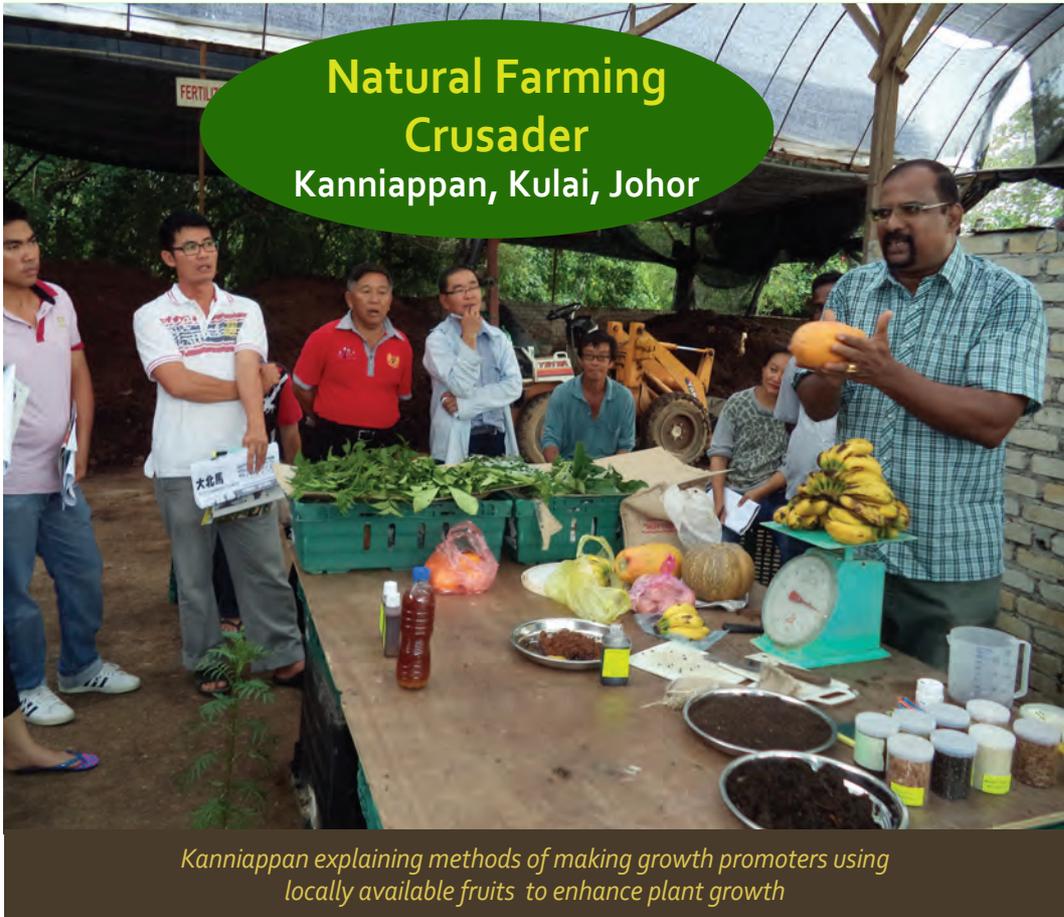
Chan says that his association with CAP has enhanced his knowledge of natural farming and the trend of farming in the global arena.

"One section in society, realising the future of organic farming, has silently started doing composting on a large scale and putting into practice natural farming methods but refuse to reveal its methods to public, lest it creates competitors. Such attitude is a byproduct of industrialization"

"Several visits to India and meeting Indian organic farmers have been a real eye opener. Chinese farmers who have already borne the brunt of farming using agrochemicals are slowly switching to organic farming and I am really happy to see that," beams Chan.

Chan says his visits to India revealed the reality about farming and the importance of sustainable farming. Chan met Indian organic farming scientist G. Nammalvar (1938-2013) in 2012 and says he is the person to be emulated by those aspiring to become organic farmers.

Chan's efforts at encouraging natural farming have culminated in the launching of the Organic Farming Research Station for the Vegetables Farmers' Association of Pantai Selangor. He is one of those instrumental in its formation.



**Natural Farming
Crusader
Kanniappan, Kulai, Johor**

Kanniappan explaining methods of making growth promoters using locally available fruits to enhance plant growth

Kanniappan Thiruvankodan, of Kulai, Johor, a paid labourer in an oil palm plantation, spent 25 years of his life with a myriad of pesticides and chemical fertilisers to the extent that he knows in detail what pesticide to use for which crop and how harmful it is to one's health.

to try out each method he had learned in South India in his own farm and to his astonishment these natural methods not only worked but produced better yield than conventional farming. His lime fruits, for instance, became double the size and fetched a better price in the market.

When Kanniappan went to Tamil Nadu to learn about organic farming, arranged by the Consumers Association of Penang in 2005, he came back sceptical that such a safe alternative would work.

His experience as a union leader in oil palm plantations and championing workers' right, naturally transformed him into becoming a proponent of natural farming.

But his inquisitive nature prompted him

Kanniappan sells natural fertilisers,

growth promoters and pest repellents. That is for his income. As part of his mission to spread the goodness of chemical-free farming, he moves around demonstrating natural farming methods – helping organizations, farmers, single mothers, agriculture department officers, indigenous communities, teachers, students and individuals to set up vermi-compost units and provide advice for novices in natural farming.

His compost and composting methods have been used by research students as part of their studies. They found it interesting that he had done his own research by releasing earthworms in different compost material. Kanniappan says he found out that sugarcane husk produces good quality compost.

Realising the expertise of Kanniappan, agriculture department officials have started referring farmers who wish to switch to chemical-free farming to him. So far, he has helped planters of jasmine, betel leaves and dragon-fruit to eliminate agrochemicals from their farms and has also played a pivotal role in CAP's endeavours to spread the message of chemical-free farming.

Kanniappan's three acres of oil

Agriculture department officials have started referring farmers who wish to switch to chemical free farming to him.

palm plantation intercropped with mangosteen trees is something rare, and probably the first of its kind. For, cultivating oil palm without the use of pesticides and chemical fertilisers is unheard of in Malaysia. But he has proved that it can be done.

Also, the use of fish amino acid has increased the flowering in oil palm. His mangosteen trees have started bearing fruits, and the squirrels



Bountiful harvest : Lime has grown double the size of the original batch of lime following the application of compost and natural growth promoters

in the area are enjoying in a share of the fruits of his labour.

Kanniappan is happy to promote chemical-free farming. It gives him a sense of fulfilment as he knows he has done his part in freeing people around him from the clutches of dangerous chemical pollutants.



Mei shy plants ground nut for fixing nitrogen in the soil

Enriching Life With Chemical-free Farming Loi Mei Shy, Relau, Penang

Loi Mei Shy, a Special Education graduate from the University of Science, Malaysia, was supposed to channel her energy and resources into dealing with physically and mentally challenged groups in society.

However, she plunged into a career where she actually works to prevent future disabilities in society. That, anyway, is how Mei Shy views her venture into natural farming, and of providing chemical-free food.

The Relau Agro-Tourism Centre run by the Agriculture Ministry at Jalan Paya Terubong in Penang has allowed Mei Shy to use one acre of its land for farming. On this one acre, Mei Shy grows corn, brinjal, papaya, peanut, roselle and a variety of herbs.

While she manages the farm by herself,

now and then some backpackers and research students from foreign countries come and help her in the farm. She provides them food and accommodation.

Methods of mulching, preparing growth promoters and pest repellents, and seed saving, which she learned from CAP's training sessions, have increased her knowledge and skill in farming. But she admits that problems of pest and fungus persist and she keeps learning and applying natural methods of controlling them.

Mei Shy has permanent customers who come to buy directly from her farm. Although the price is slightly higher than the market price, consumers leave contented because they get to eat food that is really free of chemicals. This is because although many organic shops

have sprouted here and there, people are still suspicious about the authenticity of the food sold in these shops.

Mei Shy says chemical-free farming helps her become a better, healthier human being. "I used to fall sick very often. But now I work from morning till evening in the farm and my energy level hardly drops. I eat what is produced from

my farm, my mind is more calm, and I experience a sense of serenity within," says Mei Shy.

Mei Shy is eager to expand her farm, but getting a piece of land is a real problem.

Her greatest achievement can be seen



Loi Mei Shy promoting her produce at a chemical-free lifestyle programme conducted by CAP

in her effort to unite small traders by gathering them once a month at one venue where they sell organic vegetables and household products. This market under the banner FUNMER is held on the first Sunday of every month.

She sums up her philosophy by saying:

"You can never evaluate the success of chemical-free farming by pointing to how much you earn. A chemical-free farmer should be able to view life in its totality. I am very much interested in the sustainability of life.

"The current lifestyle of consuming and discarding is a severe threat to the environment. We are in dire need of educating the younger generation to be responsible human beings and I vow to do it all my life."



The Indian borage plant is a natural remedy for fever and sore throat

“I Want Everyone to be Healthy and Happy”

Somosonderam, Seberang Perai, Penang

The very first look at Somosonderam Suppiah’s farm gives an impression of a safe baby in the arms of its mother. This is exactly the way Somosonderam treats the land that he has leased for farming. Ever since he started farming, not even one drop of pesticide has entered his farm.

For that he credits the Consumers Association of Penang.

Previously a shopkeeper, Somosonderam started farming as he was attracted to natural farming propagated by CAP. Before starting farming he always complained about the amount of pesticides used in vegetables sold in the market. So when Somosonderam got an opportunity to start a farm, he vowed that it must be chemical free.

On 2½ acres of land, Somosonderam grows trees such as papaya, neem, moringa, banana, ridge gourd, snake gourd and a



*Somosonderam’s motto :
Everyone should be healthy and happy*

“I have come across farmers who use all kinds of pesticides and weed killers in their farm and at the same time allocate different plot on which they practise chemical free farming where the harvest is consumed by their family members. “

variety of local leafy vegetables. He also rears cows, goats, chicken and fish, thus proving to be a successful integrated farmer.

“I want everyone to be healthy and happy. Don’t we suffer when our family members become ill? When we consider all those in our



Somosonderam's daughter Vijayalashimi milking the cow

community as family members, then as farmers we will provide them toxic-free food.

"I have come across farmers who use all kinds of pesticides and weed killers in their farm and at the same time allocate a different plot on which they practise chemical-free farming where the harvest is consumed by their family members. So the problem of conventional farming is really a problem of ethics," says Somosonderam.

Somosonderam, an integrated farmer for the past 14 years, uses raw materials from his farm to produce his own growth promoters and pest repellents. Over the years, he has developed methods of preparing growth promoters with their own distinct qualities. He sells

them to those facing problems on their farms. He uses herbs from his farm to prepare pest repellents. Somosonderam has knowledge of the characteristics of each herb and its use in agriculture at his fingertips.

Cow dung from his farm is used in the preparation of vermicast and pancakavya. The traditionally used growth promoter, pancakavya, is refined by Somosonderam by adding his farm input in its preparation. This refined version of Pancakavya has produced excellent results, and more and more consumers have started buying his Pancakavya for their plants and to make trees bear more flowers and fruits.

His farm is visited by laymen, university students and officials from the agriculture department.

He sells his vegetables directly at a nearby market, without the services of a middle-

"I don't spend on pesticides and chemical fertilisers, so why should I fix higher prices when the cost involved in growing chemical free vegetables is much lower?"

man. The price of his vegetables is either the same as that of vegetables grown using conventional farming methods or lower. "I don't spend on pesticides and chemical fertilisers, so why should I fix higher prices when the cost involved in growing chemical-free vegetables is much lower?" he asks.

Somosonderam has a steady clientele who come for the distinct taste of his chemical-free vegetables. While selling he also shares recipes and health tips with customers, which they appreciate.



Cow dung is used in the preparation of compost in Somosonderam's farm



Somosonderam sells directly his vegetables at the nearby market



*By composting her own kitchen and garden waste
Dr Balkees sets an example to view health as changes in lifestyles*

“Live in Commune with Nature” Dr Balkees, Gelugor, Penang

Dr Balkees bt Abdul Majeed, a pediatrician, supports and practises chemical-free activities. She holds on to the principle “Live in commune with nature and it will reward you.”

Having witnessed countless child cancer cases in her career, she is concerned that people view cancer as a dreaded disease but hardly relate it to their lifestyle and the food they consume daily.

She says chemicals used in farming are one of the main reasons for rising cancer cases. Awareness should be created among consumers and efforts should be made to provide chemical-free food, she adds.

After attending CAP’s natural farming training, Dr Balkees has put into practice what she learned in her own garden in George Town, Penang. The lush spinach, cluster bean, brinjal and ladies finger plants in her garden bear testimony to her interest.

Harvesting her own vegetables and using them in daily cuisine gives her the comfort of knowing that her food is free of toxic chemicals. Fruit trees such as mango, guava, passion fruit and banana are also found in her garden.

Through planting herbs such as butterfly pea, cat’s whiskers, mint, rosemary,

thyme, sweet basil and pepper, Dr Balkees tries to learn their medicinal values and finds ways of not only applying them in her daily life but also spreading the message in her community. Jasmine and marigold

add splendour and fragrance to her already beautiful garden.

Her plants and fruit trees do get attacked by different types of pests and diseases. She gets rid of them with natural and safe remedies such as chilli garlic paste solution, neem oil mixture, and

an extract from neem leaves and ash.

She frequently seeks CAP’s advice on planting and pest management techniques.

Two compost bins have been set up in her garden in which she dumps the garden and kitchen waste and the compost produced from this unit is applied to all her plants. Dr Balkees has started collecting seeds from her own garden and reuses them to grow her vegetables.

Dr Balkees’s endeavour is one perfect example of the maxim “prevention is better than cure”.

By composting her own kitchen and garden waste Dr Balkees shows we should view health as a change in lifestyle.

“People view cancer as a dreaded disease but hardly relate it with their lifestyle and the food they consume daily. She says chemicals used in farming are one of the main reasons for rising cancer cases.”



Lee with his bountiful harvest

“Don’t Poison People With Your Food,” Said My Father

Lee Zhen He, Banting, Selangor

Lee Zhen He has been planting sweet potato for the past eight years on 40 acres of TNB reserve land in Banting, Selangor. He says pest problems have been dramatically reduced after he increased the organic input in his soil. The termite problem is now under control too, he adds.

Lee participated in CAP’s natural farming tour of South India in 2012. He says the training and information received there has doubled his determination to stick to natural farming.

He says his late father, who was a traditional Chinese medicine practitioner, motivated him to grow organic. “When he was alive, he used to tell me, ‘don’t poison anyone with your food’. As an obedient son I am obliged to follow his advice till



*Lee Zhen He at his sweet potato farm
in Banting, Selangor*

the end of my life,” says Lee.

The leaves and stems of sweet potatoes are sent to a Malay friend as fodder for the cows he rears. In return, Lee collects dung from this friend and uses it to prepare organic fertiliser. This fertiliser is then applied in the sweet potato field.

Lee’s son, Lee Wee Song, 27, who studied mechanical engineering, worked for half a year as an engineer before deciding to follow his father’s footsteps in natural farming. He enhances his knowledge of natural farming by browsing the internet and reading relevant articles.

Lee’s chemical-free sweet potato is popular among cancer patients. Lee even exports his sweet potatoes to Hong Kong and Singapore. There is also a demand from Australia, which he has not been able to fulfil due to a shortage of supply.



*Lee’s son Lee Wee Song helps his father to
separate and grade sweet potato*

Palaniappan says he could feel a sense of freedom after releasing himself from the clutch of pesticides and chemical fertilizers. All those sore throat, eye irritation that was part of his life when dealing with chemical had vanished and he is enjoying farming more than ever.



Becoming Free from the Clutches of Agrochemicals

Palaniappan, Sungai Petani, Kedah

Palaniappan Narasappan's desire for chemical-free farming began when he started farming 15 years ago. However, because of a lack of knowledge of natural farming methods, he used agrochemicals. Off and on he tried some natural methods in his farm using the information he garnered from Tamil TV programmes and natural farming magazines. Until about two years ago, this was the case.

“No pesticide could control the mealy bug attack on my okra. But I was amazed to see that after using the five-leaves solution it became very much under control. Such a simple, cost-free and chemical-free solution is available and I was not aware of it all this while”

Now, however, Palaniappan can proudly call himself a natural farmer.

Palaniappan, whose main crop is the betel leaf, owns 2,000 plants. The Consumers' Association of Penang (CAP) conducted a training session in natural farming at his place in 2013. He put it into practice and immediately managed to reduce the pesticide level to 20%, vowing to completely eliminate pesticide use from his farm.



Palaniappan proudly showing cow dung cakes that he prepared

He kept his promise and in early 2014, he made his farm completely free of agrochemicals.

As a first step Palaniappan started making his own growth promoters such as fish amino acid, egg-lime solution and vermi-wash. The betel root disease has been controlled successfully by spreading black cumin seeds around the betel plant and banana trees have been saved from root rotting problems by applying the same method.

The durian tree in his farm suffered excessive drying of the bark, with the dried barks splitting. After applying a microorganism solution, the split bark actually rejoined. This amazing result boosted the confidence of Palaniappan and he started preparing his own growth promoters; ever since then he has been using them in his farm. Growth promoters such as egg-lime solution, fish amino acid and pest repellents made of five-leaves are being used in his farm.

“No pesticide could control the mealy bug attack on my okra. But I was amazed to see that after using the five-leaves solution it became very much under control. Such a simple, cost-free and chemical-free solution is available and I was not aware of it all this while,” Palaniappan says.

All these experiments with natural farming methods have increased Palaniappan’s confidence in natural farming.

“Pesticides limit root penetration into the soil. This leads to other root problems. Contrary to popular belief that chemicals are a remedy for our problem, they actually exacerbate the existing problem,” Palaniappan warns.

Planting horse gram in between the major crops fixes the nitrogen demand of

the soil. Horse gram and other leguminous plants are widely used as green manure to revive the soil after harvest. These plants absorb nitrogen from the atmosphere and store it in the roots. When these plants reach the flowering stage, they are chopped into small pieces and spread on the same soil to become compost.

Palaniappan said the king of bitters works wonders in repelling pests. All these natural methods help produce betel leaves that taste good and do not wilt fast.

Before switching to natural farming, Palaniappan spent approximately RM800 per month on pesticides and chemical fertilisers. The use of plastic sheets to cover the vegetable bed is widely practised among farmers to control weeds. At one time Palaniappan spent RM96 for every roll of plastic on his betel leaf beds; and



Split bark in durian trees joined together after applying farmers EM solution.



these lasted only a year. The plastic later disintegrated and crumbled into the soil. The chemical residue from the plastic then degraded the soil.

In natural farming, mulching is used to control weeds. A layer of dry leaves and grass is spread on the bed around plants. This prevents sprouting of new weeds, maintains the moisture of the soil and in the long run the mulch gets composted and further enriches the soil. After learning these techniques Palaniappan has stopped using plastic and manages weed with mulching.

Switching to chemical-free farming has turned Palaniappan into a farm scientist. He keeps experimenting with new ways and methods using leaves and herbs available in his farm.

He enthusiastically shared with us the method of making cow dung cake (Tamil:Varatti). Neem leaves,

moringa leaves, thavasimurungai leaves (justiciatranquebarensis) and several other leaves are mixed with cow dung, made into cakes and dried in the sun. These cow dung cakes are given to earthworms as food; these earthworms then release good grade compost which is then applied to his plants.

In natural farming, mulching is used to control weeds. A layer of dry leaves and grass is spread on the bed around plants. This prevents sprouting of new weeds, maintains the moisture of the soil and in the long run the mulch gets composted and further enriches the soil.

Palaniappan says he feels a sense of freedom after releasing himself from the clutches of pesticides and chemical fertilisers. The sore throat and eye irritation that were part of his life when dealing with agrochemicals have vanished and he is enjoying farming more than ever.

Ensuring Food Security through Chemical-free Farming

Abdul Latif bin Ahmad
Kuala Pilah, Negeri Sembilan



Latif at his chicken farm

Abdul Latif bin Ahmad from Kg Kuala Dioh, Kuala Pilah, Negeri Sembilan, has been into natural farming for quite a while, after being persuaded by Ahmad Kamal (story page 49) to do so. He attended veterinarian-related courses organised by the Agriculture Department and came to realise that all the agriculture courses conducted by the department are closely associated with the use of chemical fertilisers and pesticides, to the extent

“Chemical free farming not only guarantees food security but also ensures we get enough food to eat in times of crisis”

that it becomes ingrained in one’s mind that no farming can be done without the use of these chemicals.

At that time, Ahmad Kamal and other friends who were propagating chemical-free farming, motivated Latif to try this method.

Latif started his chicken farm in 2011 and ever since it has been progressing well, notwithstanding the losses incurred due to floods in his area.

Entering his chicken farm at Kg Kuala Dioh, Kuala Pilah, near Seremban, one would expect to be greeted by the smell of chicken dung. But Latif’s farm emits none

and the credit should go to the effective microorganism solutions he sprays in his farm.

The original version of effective microorganism (EM) is enhanced by adding tempeh (traditional food prepared from fermented soya) and left to ferment for one month. This EM is then added to the chicken feed (mixture of wheat and corn bran).

"I prepare my own chicken vaccine using pandanus leaf, lemon grass, turmeric,

I prepare my own chicken vaccine using pandanus leaf, lemon grass, turmeric, ginger, garlic, senna leaf (Cassia Senna), papaya leaf and jackfruit leaf. This leaves are ground together and the juice is mixed in drinking water for the chickens.

ginger, garlic, senna leaf (Cassia Senna), papaya leaf and jackfruit leaf. The leaves are ground together and the juice is mixed in drinking water for the chickens.

"Senna leaf is traditionally used by the Malay community to repel worms. It struck me that if I introduced the juice

of this leaf to the chicken, they too would be free from worms and other infections. Later, I found out that it works very well," beams Latif proudly. These leaves are cut from the surrounding area, hence they come free of cost.

Latif sells the chicken for RM8 per kilogramme to the wholesalers. It is sold for between RM14 – RM15 per kilogramme, after being cleaned, in the market.

"People say my chicken is supple and tasty," he says.

At the moment chicken for breeding is bought from others but Latif is planning to hatch his own birds, thus ensuring harvests of even better quality chicken in future.

"If people are affected by an economic down turn or any catastrophe, they can shrink their other needs and wants but definitely not food. No matter what, we have to eat. Chemical-free farming not only guarantees food security but also ensures we get enough food to eat in times of crisis," says Latif.



Preparing his own effective microorganism using locally available plants



*Durvan Subramaniam
at his home garden*

He swears that home-grown vegetables taste better and are healthier. His garden is filled with screw pine leaf, pennywort, neem, lemongrass, okra, chilli, turmeric, dragon fruit, bitter gourd, betel leaf, adathodavasa and Indian borage.

“For growing, I needed to use chemical-free fertiliser, so I decided to make one myself. I use

Chemical-free Thrill Durvan, Bayan Lepas, Penang

“A friend who worked in food technology revealed to me the ugly side of processed food and its impact on our health. That was the tipping point that made me decide to avoid processed food.

“But the fresh food is not good either. The vegetables are grown using dangerous chemicals. So I decided to grow my own vegetables. One thing led to another and that is how I started growing vegetables,” says Durvan Subramaniam of Bayan Lepas, Penang.

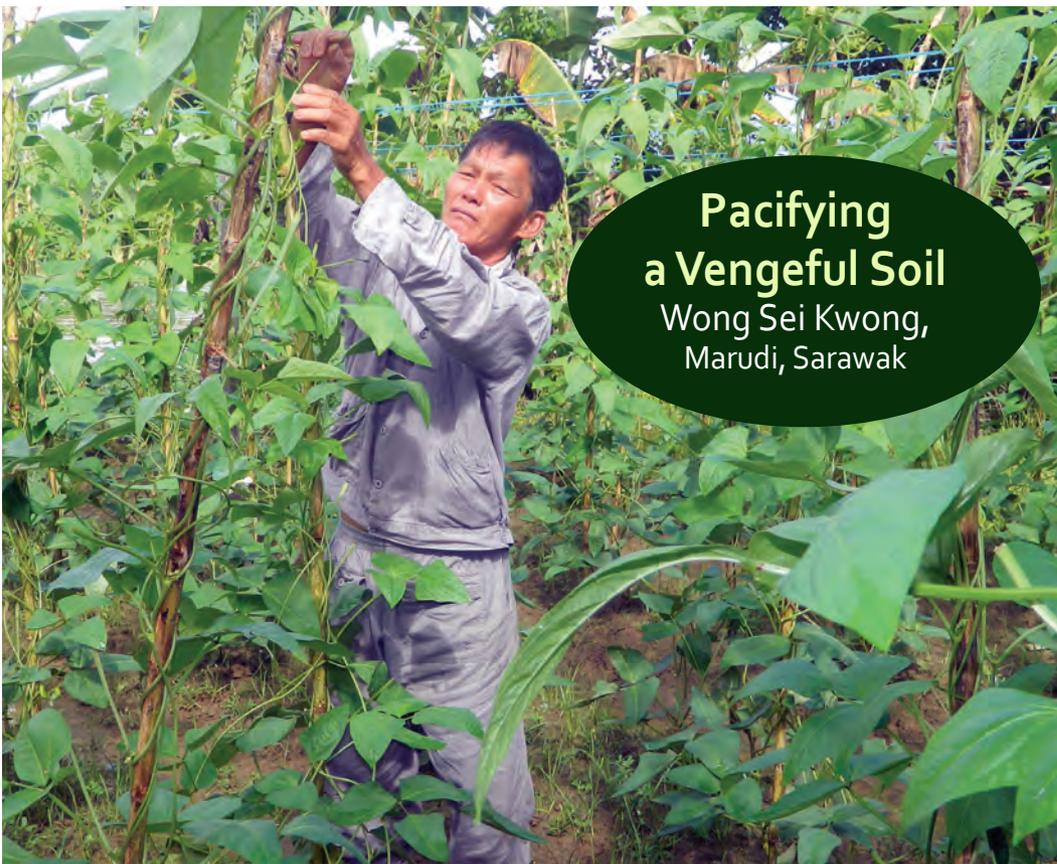
Durvan, an engineer by profession, does gardening as a hobby. “It’s a thrill to harvest something from your own garden and use it in your cooking,” he says.

cow dung, goat droppings, grounded coffee beans and rabbit droppings for composting,” he says.

Durvan has also started saving seeds from his garden and giving them to friends.



Durvan demonstrating how to make green gram sprout (taugeh) at one of CAP’s training session



Pacifying a Vengeful Soil

Wong Sei Kwong,
Marudi, Sarawak

Just like any other conventional farmer, Wong Sei Kwong of Lubuk Tumau, near Marudi, Baram, Sarawak, once believed that farming is not possible without chemical fertilisers and pesticides.

But at one stage, when the soil quality deteriorated, yields dwindled and pest attacks became more virulent despite using more toxic pesticides, Wong decided to change his methods.

"It was as if the soil taking vengeance on me for all those years of chemical applications," says Wong.

**"It was as if
the soil taking
vengeance
on me for all
those years
of chemical
application"**

"A sustainable agriculture workshop conducted in Marudi, Sarawak, by the Consumers' Association of Penang (CAP) and Sahabat Alam Malaysia in 2011 turned out to be an eye opener for me. I learned many natural farming techniques which I had never heard of till then," adds Wong.

Today, Wong prepares his own fertiliser, vermiwash and effective microorganism solution at his farm in Lubuk Tumau which is 8 kilometres away from Marudi town.



Wong's farm is free from toxic chemicals

His radish, long beans, okra, pumpkin and brinjal have shown much improvement after he switched to organic methods, and he finds that he gets a better chilli yield now that he is applying natural fertilisers.

Armed with his experience, Wong now conducts training for other farmers and never tires of talking about the benefits of chemical-free farming to farmers whom he meets.



Chilli is cultivated using natural growth promoters



vermiwash enhances the plant growth

Towards a POPs-free Life Creating Kitchen Enzyme

Dalina Bt Md Dahlan
Bukit Cherakah, Gombak, Selangor

Dalina Bt Mohd Dahlan always introduces herself as a housewife. But when she goes on to explain what she does in her small natural farm, the environmentalist in her is revealed.

Although she has been involved in natural farming for only four years, what she has achieved is remarkable. Dalina started with a home kitchen garden, introduced to her by Ahmad Kamal Mohd Ali (story page 49) using old tyres.

Soon after, one acre of land owned by the Majlis Bandaraya Shah Alam was allocated to 11 women from Bukit Cherakah to experiment with natural farming practices. Dalina is one of them.

A combination of rice washed water and small chilli serves as an instant remedy for pest problems.

Dalina grows water spinach, tapioca, chilli, sayurpucukmanis (sweet leaves) sawi (mustard leaves) and spinach on this land. She takes some for her own consumption



Dalina showing varieties of natural growth promoters, effective-microorganism prepared by the women's group

and sells the rest at a local market which is held every Wednesday.

She has developed her own method of composting using paddy husk, food waste and chicken dung. She has created a pest repellent using locally available herbs and herbs popular among the Malay community – such as citronella, pandan leaf, lengkuas (galangal), small chilli, local bamboo and akar seruntun (*Tinosporatuberculata*).

This solution was tested for its efficacy in a local lab and Dalina has received praise

for her invention. A combination of rice washed water and small chilli serves as an instant remedy for pest problems, according to Dalina.

They use th enzymes to clean the floors of their houses instead of detergent soaps that pollute the ground water with their hazardous chemicals.

Dalina says one should take pests as a challenge and should not resort to pesticides as an immediate solution. Pesticide, in addition to leaving behind vengeful effects on the environment and human beings, is a bane to the very existence of living things.

Dalina's friends create enzymes using kitchen waste. Each woman uses her own method of preparing kitchen enzyme. They use this enzyme to clean the floors of their houses, instead of detergent soaps that pollute the ground water with their hazardous chemicals.

This enzyme repels flies and ants effectively. In fact, the women's group



Crumbly compost produced by Dalina using own methods

entered a competition and won a prize for the enzyme they created.

"Living in an apartment is no reason for one not to start farming. If there is a will, there is a way," asserts Dalina.

"Practising natural farming gives me full satisfaction and I try to pass this message to every woman I meet. I can only motivate them, but they have to do it," adds Dalina.



Dalina churning the EM solution



Her small farm well taken care of

“Be Innovative and Create Your Own Growth Promoters”

Haron Hussain, Sik, Kedah

The chicken and duck coop, fruit bearing trees and a variety of plants with pest repellent properties around the house are testament to the natural farmer within Haron Hussain.

Haron has been into natural farming for the past eight years. He keeps reading different literature on natural farming, including CAP's publications on natural farming and books from Indonesia. The information culled from such reading is tried, tested and modified using locally available resources.

Haron's expertise in preparing livestock feed is laudable. The animal feed is prepared by blending rice bran, effective microorganism, moringa leaves, heads of anchovies, salt and brown sugar and then allowing it to ferment over several days. This feed is then mixed with rice and given to livestock. Haron collects leftover rice from nearby restaurants daily for this purpose, thus preventing food from being thrown away or wasted.



Haron developed a skill in livestock feed preparation

He also gives lectures on natural farming practices and demonstrates methods of natural farming to farmers and students from higher learning institutions.

“When mingling with farmers I realize that they are docile lot. Farmers are satisfied with the chemical fertilizers and pesticides, as long as it brings the desired yield in their farm. The environmental and health cost is not taken into consideration.”

“Farmers are still not aware that the agrochemicals that kill pests can also kill them. Pests should not be killed but repelled. When we kill pests we also kill the predator insects and in the process disturbs the



Haron grows plant with pest repellent properties and uses them in the preparation of compost

repellent solution is also added into the compost to enhance the ability of the compost to repel pests.

Haron's experience shows that moringa leaves, traditionally eaten by Indians, can also be used in most of the compost and growth promoter preparations as it is rich in nitrogen.

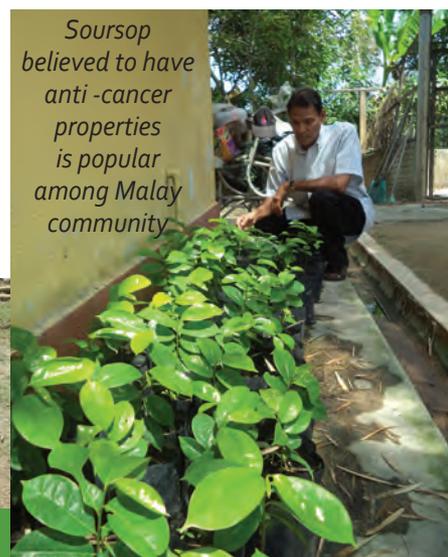
"When mingling with farmers, I realise that they are a docile lot. Farmers are satisfied with the chemical fertilisers and pesticides, as long as it brings the desired yield in their farm. The environmental and health cost is not taken into consideration.

"Farmers should realise that they are also responsible for leaving behind a safer and toxic-free world for our children to live in. I conclude all my lectures with this message," says Haron.

equilibrium of the environment.

"Repelling pests is easy. Pests are averse to bitter plants and to plants that emit strong fragrance. So plants that have these properties should be used in the preparation of pest repelling concoctions. For example, neem (bitter in taste) and citronella (emits strong fragrance) can be shredded into small pieces, soaked for a few days and this solution can be sprayed to repel pests. For better result, garlic and chilli can also be added," says Haron.

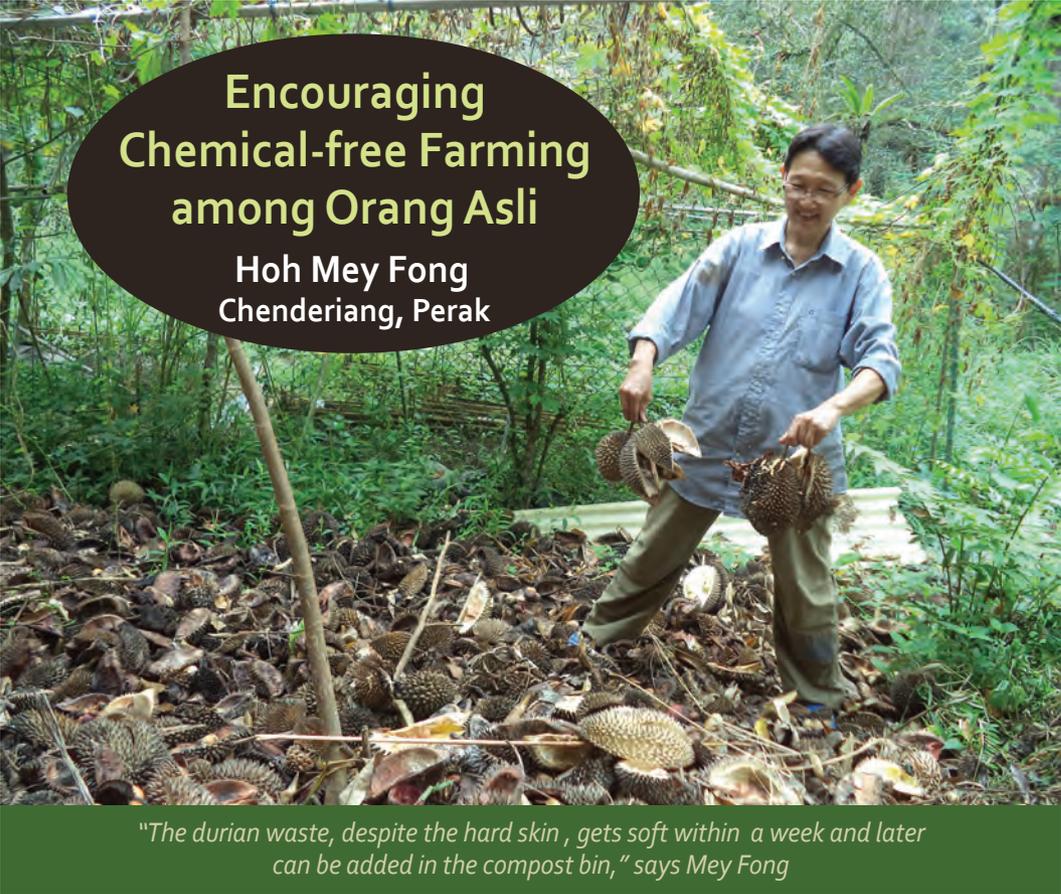
In the preparation of compost, Haron mixes the effective microorganism solution for speedy composting. Pest



Soursop believed to have anti-cancer properties is popular among Malay community



Haron's ducks are free from diseases



Encouraging Chemical-free Farming among Orang Asli

Hoh Mey Fong
Chenderiang, Perak

"The durian waste, despite the hard skin, gets soft within a week and later can be added in the compost bin," says Mey Fong

A passion for nurturing nature led Hoh Mey Fong to encourage the Orang Asli (Malay term for the indigenous people in Peninsular Malaysia) community to undertake more resourceful farming techniques. The work she has been doing with the Orang Asli at Kampung Sungai Cincin, Chenderiang near Tapah, Perak, bears ample evidence of this.

The 10-acre area of forest areas hides within it thousands of trees and herbs which are abundant with medicinal values.

The Orang Asli, who still stick to a nomadic way of life, hop from one place to another

to earn a living. Often, by the time they come back to their own ancestral land it is already cleared for development by outsiders or the Orang Asli are denied the right to live on the land.

So, as a first step, Mey Fong made them stay put at one place. Then she introduced them to organic farming methods.

Back in 2012, CAP introduced methods of composting to the Orang Asli community here and ever since, they have been harvesting their own vermicompost.

The compost produced here is of high quality due to a variety of leaves, twigs,



Orang Asli youths under the guidance of Mey Fong learning the skill of composting



goat dung and other waste material available in the forest.

“We have lots of durian trees here. Durian with its hard thorns may look hard to compost. But in reality it becomes soft within one week and later can be added in the compost bin. The banana trunk is used in harvesting local worms,” says Mey Fong.

Knowledge about the medicinal value of the trees and herbs in jungle is fast diminishing amongst new generation Orang Asli. Mey Fong and others are currently documenting this knowledge by gathering it from the older folks of the Orang Asli community.

The Orang Asli grow rubber trees on their ancestral land and Mey Fong has been guiding them to grow them chemical-free.

A major problem in getting the Orang Asli to take to natural farming was that they were easily swayed by pesticide companies promoting their weed killers. As a result, a variety of pesticides, herbicides and chemical fertilisers entered into the life of the Orang Asli community. However, this has been phased out gradually by educating them on the dangers of these toxic chemicals.

Knowledge about the medicinal value of the trees and herbs in the jungle is fast diminishing amongst the new generation of Orang Asli. Mey Fong and others are currently documenting this knowledge by gathering it from the older folks of the Orang Asli community.

“This is important in encouraging and practising a chemical-free lifestyle in future,” she says.



Rearing goat and using goat dung for composting



Fish pond - Mey Fong allows visitors to catch and cook their own fish



Preserve Seeds for a Safe Future Yahqappu, Batu Arang, Selangor

Yahqappu Adaikkalam, a nature-lover, started his working career as a restaurant operator with the noble intention of providing healthy food to people. But later he realised that he was unable to achieve this as the food he served was contaminated with toxic chemicals.

Then, mingling with some organic farming enthusiasts and visiting several organic farms in South India, he saw that farming is the core of life. He felt that by doing natural farming he would be able not only to give people toxic-free food but to understand life better. This triggered in him a desire to

“In natural farming the topmost priority should be given to soil health.”

learn more about natural farming and to start a natural farm.

He found 1½ acres of land at Batu Arang, 12 km from Rawang, Selangor, and slowly started growing some vegetables. In the initial stage he was not even able to differentiate between plants and weeds, as he had zero knowledge of farming. He says the first five years were a real challenge as he

was trying to get familiar with farming. During this period he tried learning different methods of natural farming.

In natural farming, the topmost priority should be given to soil health. Hence, in

the beginning stages, he worked towards improving the soil condition. In five years, the soil condition improved significantly and Yaqappu started growing a variety of vegetables.

Yahqappu then bought a cow as he believes that natural farming is incomplete without it; he also bought some chickens. Then, with the help of CAP he started vermicomposting and applied vermicast to his plants.

Yahqappu believes that farmers should hold firm to their own farming culture as it has been tried and tested for ages and proven to give good yield.

Like other farmers, Yahqappu too has difficulties marketing his vegetables. To overcome the problem, he has managed to get some of his friends to help him market his products. He uses the planter box system in which a network is created among 12 natural farmers. These farmers send their chemical-free harvest to one central area in Kuala Lumpur and from there it is sent to the houses of customers.

Yahqappu realises that using his own seeds for natural farming is very crucial, as buying seeds from big companies creates seed dependency and the

farmer loses the freedom of producing his own seeds. Hybrid seeds do not give much yield either. Further, these seeds are treated with dangerous fungicide – not strong enough to fight diseases and designed in such a way that seeds derived from these plants cannot be used for replanting.

He strongly believes that every seed is embedded with its own knowledge. The seed, from the sapling stage to the full grown plant or tree, goes through several stages such as getting adjusted to climate change, local eco-system, fighting diseases, competing with weeds, etc. He says the embryo of the seed records all this information and passes it on to the next generation of seeds.

He has found that some varieties of vegetables become refined after several cycles of replanting. Amaranth grown in his farm is a native variety which he found in his own farm. Initially the amaranth leaves



cows are ally of natural farming

were very rough and looked like a wild variety, but after the seeds went through several seasons, and generations, of replanting, the leaves are now tender.

Yahqappu believes the plant species has got adjusted to the local condition. He shares such information with his customers so that more and more people will start eating chemical-free vegetables using locally cultivated seeds.



his own seeds and is also giving the seeds to his farmer friends. Yahqappu believes that farmers should hold tight to their own farming culture as it has been tried and tested for ages and has proven to give good yield.

"Our ancestors valued and respected nature and the soil. Only natural farming is sustainable and will be able to feed the world in future", says Yahqappu.

So far Yahqappu has collected seeds from corn, okra, green and purple brinjal, long brinjal and amaranth. He is planting

As part of community service, he conducts environmental education in schools, residential areas and community centres.

Nurturing is in her blood

**Che Saudah Bt Tahib
Kampung Cherakah Jaya,
Gombak, Selangor**

For Che Saudah bt Tahib, a retired staff nurse who successfully raised 10 children, farming comes easily. Nurturing is in her blood.

In 2013 she knew nothing about farming. Towards the end of the same year when her friend Dalina suggested that she experiment with farming, she thought of giving it a try. Saudah grows small chilli, long beans, okra, spinach, kangkung (water spinach), sawi (mustard leaves), ground nut and tapioca.

She uses most of the vegetables for her family's consumption and sells



the balance. She earns roughly RM50 per week from selling vegetables. She gets the seeds for sowing from MARDI. Saudah has started collecting capsicum seeds and plans to do the same with other seeds as well.



Kitchen waste collected from a nearby school and coconut husks are used in composting

Seeker of Environmental Equilibrium

Ho Weng Cheong, Jalan Gombak, Selangor

After returning from training in organic farming in Tamil Nadu, the first thing Ho Weng Cheong did was to buy a cow.

The training made Ho realise the versatility of the cow in natural farming. Soil spread with cow dung enhances good bacteria in the soil and helps restore the green pasture of his farm.

Ho, known fondly by his friends as Ivan,

Soil spread with cow dung enhances good bacteria in the soil and helps restore the green pasture of his farm.

says that in three months he had refurbished the top soil of his five acres of land in Kampung Salak, Jalan Gombak, Selangor.

Some of the activities that Ivan Ho undertakes at his farm include composting, growing fruit trees and a variety of herbs, rearing

chicken for eggs, harvesting honey, experimenting with the traditional way of preserving food, and saving seeds.



Honey harvest in Ivan Ho's farm is mainly supplied to the infirm

Kitchen waste collected from a nearby school, and coconut husks, are used in composting. The effective microorganism solution prepared in the farm expedites the composting process. Ivan pays those who bring waste material for composting with fruits and vermicast.

The pesticide-free environment in his farm is conducive enough for harvesting honey. Ivan has placed honey boxes prepared in his farm at several places and the harvested honey is supplied to the infirm and the sick. This way he gets the

The pesticide free environment in his farm is conducive enough for harvesting honey. Ivan has placed honey boxes prepared in his farm at several places and the harvested honey is supplied to the infirm and the sick.

satisfaction of being able to serve the community. He has made his farm a learning centre for those interested in learning about nature, too.

Students and members of the public often stay here to learn about nature. Research students who stay here for more than one month grow their own vegetables and use them in their cooking.

“People may call me a farmer but I see myself as a human being traversing a path to understand nature better,” says Ivan Ho.



Ivan Ho's father Ho Choong Yee with cows : cows help ensure greener pastures



Promoting indigenous amla - Sanmargam's penchant for chemical-free life knows no boundary. He keeps exploring traditional knowledge as a way of promoting healthy life style

Imparting Traditional Knowledge Tirelessly Sanmargam, Lunas, Kedah



Sanmargam giving training on the setting up of vermicompost units for breeding earthworms and producing vermicompost

Sanmargam Kathiravan of Kulim, Kedah, has been instrumental in CAP's efforts to promote natural farming. After attending natural farming training in Tamil Nadu, he applied the methods he had learned at his small garden and found it to be very effective and safe.

Over the years, Sanmargam mastered the art of making growth promoters and pest repellents and has imparted his knowledge successfully to thousands of farmers, agriculture officers, housewives and students whom he met at CAP's workshops and seminars.

It is not easy venturing into chemical-

free farming, as Sanmargam found out. In spite of his burning desire to do so, he had great difficulty in getting a piece of land. However, after a long struggle, Sanmargam managed to get one acre of

land and has now started planting a variety of gooseberry (amla).

This amla variety, said to have its origin in India, was brought by Sanmargam from a remote area of Baling, Kedah.

"Amla is extremely rich in vitamin C and abundant in medicinal values. Cultivating and popularising such fruits locally will lead to healthy fruit consumption, and at a much lower price," says Sanmargam.

Over the years, Sanmargam mastered the art of making growth promoters and pest repellents and has imparted his knowledge successfully to thousands of farmers, agriculture officers, housewives and students whom he met at CAP's workshops and seminars.



**Unleash the
Natural Farmer
Within
Sri Vinayagamoorthi
Sungai Petani,
Kedah**

Sri in his jasmine garden: natural farming methods are toxin free and safe

Sri Vinayagamoorthi Ramasami had always wanted to eliminate toxic chemicals from his farm and after attending CAP's natural farming training session in 2013 he began applying natural methods on 400 of his jasmine plants.

Upon seeing the amazing results, he dived into natural farming and has since fully eliminated chemicals from his farm.

"Farmers want instant remedy for their pest woes. That is why they buy pesticides. But after learning natural farming methods, I was amazed to find out that pest repellents such as garlic-ginger solution work wonders in repelling pests. It is easy to prepare and

can be applied on plants on the same day," says Sri.

Sri says most farmers use at least four different types of pesticides by the time they harvest their plants. He says chemical pesticides are dangerous to health. For example, one brand of pesticide would cause severe allergy to whoever spraying it. If a chicken were to eat pests killed by this pesticide, the chicken would also die, he warns.

"Knowing the danger of chemical pesticides, I am happy to learn and apply natural farming methods. Our origin can be traced to natural farming. So each farmer should take the effort to unleash the natural farmer within them," adds Sri.

“Love for Good Food Turned Me into Chemical-free Farmer” Chuah Sock Kim, Machang Bubok, Penang



Chuah pointing to her pomelo plants

Butterflies of myriad hues can be seen fluttering around the moment one enters Chuah Sock Kim's 2½-acre farm in Machang Bubok, Seberang Perai, Penang.

The passion and interest shown by Chuah in farming has made her go chemical-free on her farm in the land that she inherited from her parents.

“People like to eat chemical-free food. But they cite the exorbitant price of organic vegetables as the reason for not being able to buy it. I suggest to them to grow their own. Only then it strikes them that

they can actually grow their own vegetables.

“Once, during a conversation with a friend, I abruptly told her to grow her own food but she thought it was a sort of derision. Such is the distance we have developed from natural farming,” Chuah observes.

“My penchant for food is indescribable. I am the kind that relishes food and when I tasted organic food for the first time during a trip to London, I realised it was delicious and unique,” she says.

Chuah also rears turkeys, chicken, ducks, geese, guinea fowls, red jungle fowls, and goats on her farm, turning her into a versatile integrated farmer. In addition, the fruit trees and flower-bearing plants create a conducive environment for the proliferation of honey bees.

Fruit trees and flower bearing plants creates conducive environment for the proliferation of honey bees.

Children visit Chuah's farm to learn what integrated farming is all about. “Long ago it was a part of most children's life. Come industrialisation, farming became alien to them. Oblivious to the agriculture process,



Chuah Sock Kim with her husband Michael in their farm



Grain fed chickens grow healthier and free from diseases

children think food is readily available in shops.

“It is therefore crucial to introduce farming to children so that they have a better understanding of what food is all about and its link to the environment and

our very survival,” says Chuah.

“My husband and I believe in eating right, in eating naturally produced (or organic) food and in a balanced diet. We do not believe in spending hundreds and thousands of dollars taking vitamins or other “miracle products” or the occasional “detox” to compensate for a poor diet or otherwise unhealthy lifestyle.



Eggs from turkeys, chicken, ducks, geese - available at Chuah’s farm



Chemical-free farm attracts bees: Naturally formed bee hives in between old wooden planks in Chuah’s farm

“Even worse, we don’t believe in taking slimming pills to compensate for a lack of exercise. We seek to impart this knowledge to the local community” adds Chuah.

Ng Tet Wong from Rawang, Selangor places recycling and community service on the same platter in his life journey.

Back in 2006 Tet Wong obtained 1000 earthworms from Consumers Association of Penang (CAP) for composting uprooted old oil palm trees and started indulging seriously into vermiculture. His one thousand earthworms soon multiplied into few hundred thousands of earthworms which materialised into vermicompost production.

The success has been channeled into creating job opportunity for single mothers through an organization called "eHomemakers".

The vermicompost produced from earthworms is used as a platform by Tet Wong to teach urban dwellers to grow vegetables such as pumpkin, lettuce, cabbage and cauliflower in pots as a way of cutting down expenses on the escalating food bill.

Tet Wong strongly feels that younger generation should be educated on healthy and sustainable living.

"Current technology driven



Serve the Community through Composting Project

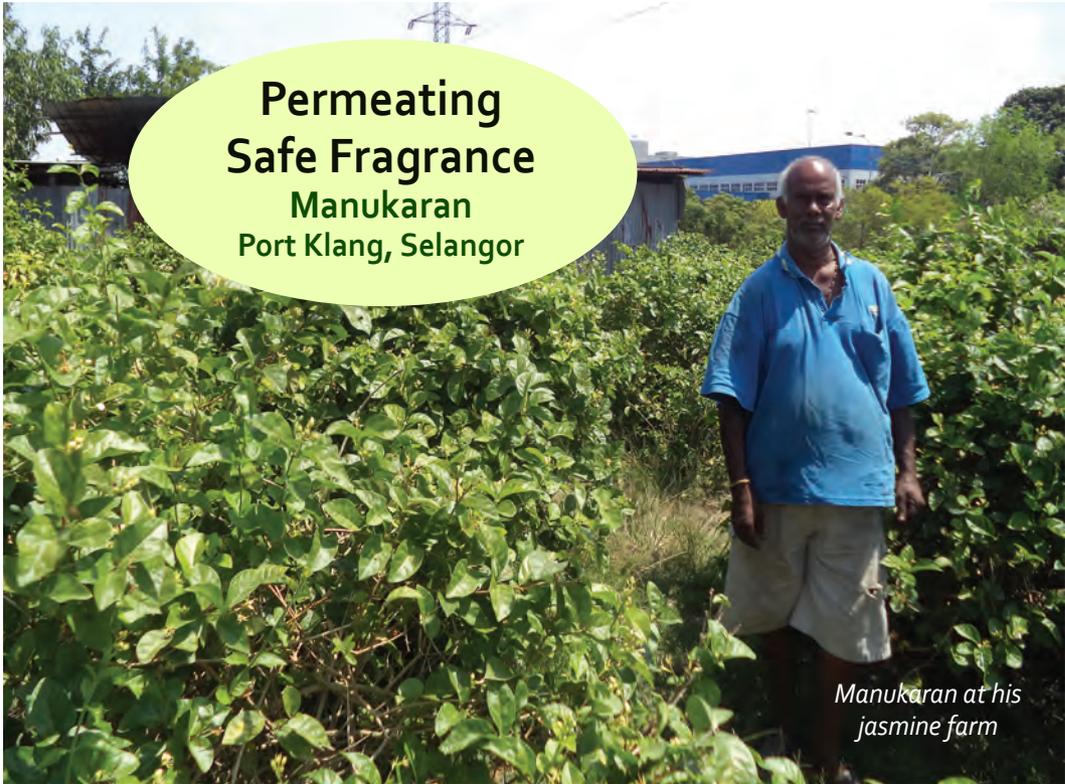
Ng Tet Wong, Rawang, Selangor

era had pushed youngsters into use and throw culture. I don't want my son to be part of that destructive culture. My son is now showing great interest in earthworm breeding and has been passionately learning many other sustainable methods," says Tet Wong.



Tet Wong's son Ng Chang Sheng shows keen interest in earthworm breeding

Ng Tet Wong's uses sacks to produce vermicompost at his home



**Permeating
Safe Fragrance
Manukaran
Port Klang, Selangor**

*Manukaran at his
jasmine farm*

Manukaran Balakrishnan has been growing the jasmine plant on three acres of land for the past 18 years. The first 12 years saw excessive use of pesticides, weed killers and chemical fertilisers. Then came a stage when pest attacks became stronger, the soil more barren and weeds grew wilder.

“The soil became hard within two months of applying chemical fertilisers and needed ploughing, and that was an arduous task, especially with the shortage of workers. Besides that, pesticides and weed killers swallowed a large chunk of my income. “I used to spend RM1,000 to RM1,500 for

“My wife kept complaining about her deteriorating health due to prolonged exposure to toxic chemicals as she plucked jasmine daily. “

pesticides alone. More importantly, my wife kept complaining about her deteriorating health due to prolonged exposure to toxic chemicals as she plucked jasmine daily.

“I was in a quandary when help came in the form of my cousin brother

Kanniappan (story page 53) who moves around advocating chemical free farming. My life turned over a new leaf when I placed a hundred percent trust in my cousin brother and went into chemical-free farming without a second thought.

“Step by step I learned composting, methods of making growth promoters,

pest repellents, mulching, enhancing soil fertility and many more chemical-free farming methods. I applied all that I learned in my farm and as a result the yield was amazing," says Manukaran.

"Burying neem-cake (ground neem seeds after extracting the oil) between two jasmine plants is a natural way of treating soil by killing harmful and disease-causing microorganisms, thereby enhancing soil fertility.

"The application of natural growth promoters increases the quantity and quality of flowers. As a result my jasmine harvest is abundant during the flowering season. Importantly too, after switching to natural farming methods, I found that the flowers were blooming during non-seasonal periods and that I could supply jasmine to my customers at any time.



"But I did not take this opportunity to mark up the price of jasmine. Chemical-free farming has taught me to be greed-free as well.

"After applying natural farming methods, the jasmines are firmer and the buds can remain fresh at least for a week. You know, only jasmine buds have value in the market. With chemical-free methods, the flowers give a better fragrance and florists find it easy to make garlands with my jasmine," says Manukaran.

Besides jasmine, Manukaran also grows curry leaves. His curry leaves are bought



Large composting area - the compost is used to enhance the growth of jasmine plants

by curry powder mill owners. Curry leaves are ground together with chillies and other spices to make curry powder; they enhance the taste.

The stems of the jasmine are greener and last longer after the application of natural growth promoters

Mill owners have told Manukaran that pesticide-tainted curry leaves spoil the aroma of the ground curry powder, so they prefer pesticide-free curry leaves. Manukaran firmly believes that chemical-free farming not only increases yield but promises better health to consumers.



Curry leaves as border crops : Manukaran sells them to curry powder mills

All Set for a Toxic-free Life

Yong Weng Thing
Sungai Raya, Gopeng, Perak

Yong Weng Thing of Sungai Raya, Gopeng, Perak, has become a chemical-free farmer. But that's not all. Yong, a vegetable farmer, believes that he should also encourage others to follow the same path.

He continuously spreads the message of chemical-free farming among his fellow farmers and has, within a span of three months, twice arranged for training on chemical-free farming to be conducted by the Consumers' Association of Penang at his place.

“Although I started as a conventional farmer using agrochemicals, I have vowed not to poison anyone anymore with my produce”

Yong, who owns farms both in Cameron Highlands, Pahang, and Gopeng, Perak, is in the process of eliminating the use of agrochemicals from his farm.

All the experiments in the field are done by his workers and they say farming has become easier and interesting after applying natural methods.

Yong's assistant Birksha, who is an expert in preparing vegetable and fruit enzymes, says pest attacks have



Yong Weng Thing with his assistant Birksha creating their own vegetable enzyme to be used in the farm



Compost making training at Yong's place conducted by organic farming expert Gopalakrishnan from Tiruchi, Tamil Nadu, India

declined tremendously ever since they started applying this enzyme.

In one month, Yong prepares an average of 15 tonnes of compost. He finds that the soil is more porous and tilling the land is much easier after applying this compost.

Yong says he keeps disseminating information about the benefits of chemical-free farming among his friends as he realises the danger of chemicals to human beings and the environment.

"Although I started as a conventional farmer using agrochemicals, I have now vowed not to poison anyone anymore with my produce," says Yong.

Yong brought back moringa seeds from Tamil Nadu, India during an organic farming training there and planted them in his farm. Moringa, rich in nitrogen, can be used in compost making





Farmers' Mental Sluggishness a Boon for Agrochemical Companies

Calvin Choo Weng Kee, Kulim, Kedah

Calvin Choo Weng Kee, a Special Educational Needs (SEN) teacher by profession, has been farming for the past five years, but his chemical-free farming venture is just a year old. Yet his papaya plantation, intercropped with brinjal, has rewarded him with a bountiful harvest, the result of applying growth promoters such as fish amino acid and pancakavya.

"It is illegal to buy pesticides from Thailand, but we are buying rice and vegetables cultivated in Thailand and consuming it daily."

Calvin questions the irony behind banning the entry of agrochemicals from neighbouring countries. "It is illegal to buy pesticides from Thailand, but we are

buying rice and vegetables cultivated in Thailand and consuming it daily," he says.

"Some farmers have developed a kind of mental sluggishness but they themselves do not realise it. They are reluctant to come out from the comfort zone provided by the Agriculture Department which supplies fertilisers and pesticides, often for free or subsidised rate.

"Incentives in terms of chemical fertilisers and a variety of pesticides offered for free or at minimal cost are a major hindrance



Papayas intercropped with brinjal are ready for sale

to a majority of farmers who might want to switch to natural farming methods. Natural farming requires extra work, at least in the initial stage, to prepare one's own growth promoters and pest repellents," says Calvin.

"Serving the community is always in my agenda. I am thinking of expanding my chemical free farming venture into more community services in future," says Calvin.

Calvin went one step further in serving the community from the papaya sale. One portion of the papaya is given to single mother to be sold in the market as a source of income for them. This way he could cut on the middle man and hence increases the profit made from the papaya sale. These single mothers able to make profit of RM 1.50 per kg papayas.

"The demand for the papaya increases as it is chemical free and taste better than the chemically grown," says Calvin.



Selling papayas : source of income for single mothers

Spreading Toxic-free Lifestyle Message in Sri Lanka

Kanchana Weerakoon
President, Eco Friendly Volunteers, Sri Lanka

Kanchana Weerakoon from Sri Lanka participated in a regional training programme for civil society organisations, organised by the Consumers Association of Penang in Recsam in 2013.

During the training, Kanchana was alarmed to learn about the serious impact of pesticides and weed killers used in conventional farming. She also learned about chemical-free farming methods.



Kanchana, the President of Eco-Friendly Volunteers which operates from Boralesgamuwa, Sri Lanka realised the urgent need to spread this message in her own country. Upon reaching home, she immediately incorporated these chemical-free farming methods into her environmental activities.

As a way of encouraging a chemical-free lifestyle, an Consumer Voice of Sri Lanka was formed in September 2013. She said the idea was derived from the numerous activities conducted by CAP in encouraging a chemical-free lifestyle. Now this message is incorporated in all her training courses.

Kanchana says farming using chemicals is rampant in Sri Lanka. Last year, she started a chemical-free farm in the North West of Sri Lanka on about 6 acres of land. A group of healthy lifestyle enthusiasts, called Eco-Friendly Volunteers, are instrumental in making this project work.

Kanchana realised the urgent need to spread this message in her own country. Upon reaching home, she immediately incorporated these chemical-free farming methods into her environmental activities.



Environmental activities are vital to instill awareness on environment among younger generation



A group of students from University of Colombo visiting ECO Garden to study natural farming methods

She and her group run programmes for school leavers, housewives, dropouts and students from higher learning institutions.

“Toxic chemicals have infiltrated our life to an alarming extent. All our activities are geared towards leading healthier lifestyles and CAP’s messages are of great relevance,” says Kanchana.



Making compost pile after teaching ECO-Friendly Volunteers group



Differentiating between chemically and organically grown vegetables and disseminating the messages through press conferences



Launching of the book "Home Nutrition Garden" by Consumers Association of Penang to promote safe gardening practices among housewives



Introducing different types of local herbs for pest control and as natural remedy for diseases



Pest management expert from India suggesting remedy for golden snake attack in rice fields in Alor Setar, kedah



CAP's Vice President Mohideen Abdul Kader addressing participants during a training



Natural farming training for agriculture officers from Alor Setar, Kedah



CAP's natural farming workshop - farmers, agriculture officers, environmental enthusiasts, scientists, officials from Ministry of Agriculture discussed the future of chemical-free farming in Malaysia





Chemical -free farming training for farmers at CAP's training centre



*A visit to Tamil Nadu to learn chemical-free farming.
At the middle is G. Nammalvar (1938 – 2013), Indian organic farming scientist who had been a great inspiration for Malaysian farmers into practising chemical free farming*

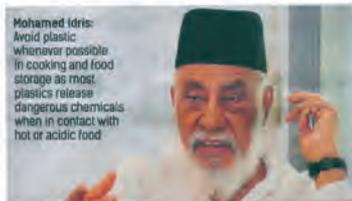
Highlighting POPs Perils through Media



FRIDAY 17 OCTOBER 2014 NEWS | STARMETRO 13

Pick food with less chemicals

CAP advises consumers to avoid having processed meals



Mohamed Idris: Avoid plastic whenever possible in cooking and food storage as most plastics release dangerous chemicals when in contact with hot or acidic food

Malaysians should practise a healthy lifestyle by avoiding processed food and opt for products with less chemicals, said Consumers Association of Penang president S.M. Mohamed Idris.

"We have the mindset that new consumer products are safe for consumption but the truth is some of these products carry toxic chemicals harmful to our health.

"Permitted chemical additives used in food have increased from 800 in 1990s to 3,000 in 2014. The invasion of chemicals into our lives is one of the main cause to the increasing health problems," he said in a recent statement.

Mohamed Idris said processed

food came in attractive packaging, but the consumers were not aware of the chemicals released by the packaging.

"According to the Federal Institute for Risk Assessment in Germany, the cardboard of a pizza packaging comes with a host of chemicals as it is manufactured from recycled newspaper while cling film used to cover meats, vegetables and sandwiches releases plastic components into food.

"Similarly, polystyrene containers and cups are filled with hazardous chemicals as well.

"Consumers should avoid plastic whenever possible in their cooking and food storage as most plastics release dangerous chemicals when in contact with hot or acidic food," he said.

6 NEWS Wednesday, November 12, 2014



Green message: Mohamed Idris is speaking on the need to drop the use of plastic bags during the campaign at the market.

Simple to make: Shoppers at the Pulau Tiang market checking out the cloth bags made from old T-shirts.

Cloth bags instead of plastic

Eco-conscious students encourage market goers to pick up green habit

Penang's Pasar Malam Pulau Tiang market goers were encouraged to use cloth bags for their groceries during the Green Action Week (GAW) campaign.

Some cloth bags made from old T-shirts were distributed at the market.

The initiative was by the school's Green Club in collaboration with the Consumers' Association of Penang (CAP).

CAP president S.M. Mohamed Idris said the project was aimed at raising market goers' awareness about the dangers plastic bags pose to the environment.

"It is also about providing an eco-friendly alternative for shoppers," he said.

"Malaysians still use a large number of plastic bags daily.

"These bags are non-biodegradable and when they are thrown away, they pollute our environment," he said.

"By reusing old T-shirts and turning them into cloth bags instead, we are trying to reduce pollution and also the amount of waste going to the landfills," he said.

Mohamed Idris said there were also plans to conduct similar outreach projects at other wet markets in the island, as the campaign at the Pulau Tiang market had received a positive response from the public.

Agent from distributing the cloth

bags and pamphlets on plastic pollution were also distributed. It was found that it was not too difficult to make cloth bags from old T-shirts.

Green Club member Lisa Chew, 18, said it only took about 10 minutes to create one bag using only a T-shirt and a pair of scissors and a pair of needles.

"We convinced T-shirt fans, family members, friends and even neighbours.

"Many were more than happy to give away their old T-shirts as they did not have any use for them," she said.

"The cloth bag spent from being handed in use is a really simple accessory now," she said.

"She added that the project was also held in conjunction with the school's 'Green' Action Week.

Market goer Julia Whitefield, 42, from the United Kingdom, said she was very impressed with the idea.

"Back in the United Kingdom, we usually carry reusable bags when we do our shopping, but I have observed that it is very different in Malaysia.

"The number of plastic bags used at the wet markets is very high.

"It is encouraging that the younger generation is learning how to reuse old items and educate others to do the same too," she observed.



Simple to make: CAP (left) handouts cloth bags and B. Praveen Kumar (right) helping women looking at the cloth bags at the Pulau Tiang market.

STAR METRO 12 November 2014

Plastic packaging harmful

CAP: Use glass, ceramic or stainless steel to store hot food instead

The Consumers Association of Penang (CAP) has urged consumers to use traditional wrappers and liners for cooking rather than plastics as a move to practise a healthy lifestyle.

Its president S.M. Mohamed Idris said the public should understand that heat would cause harmful chemicals to leach from plastics.

"Therefore, they should avoid using and placing hot food or drinks in plastic materials or cooking food with plastic liners.

"We should also not store hot food in plastic containers, sheets, liners or even bags," he said.

"There are many options available to store or heat food such as glass, ceramic or stainless steel.

"Most plastic items release dangerous chemicals when in contact with hot or acidic food.

"Similarly, polystyrene containers and cups are filled with hazardous chemicals as well," he said in a press conference held at the CAP office yesterday.

Mohamed Idris added that studies carried out by the European Plastic Industry showed that global plastics production in 2012 rose to 258 billion tonnes, a 2.8% increase com-

pared with that of 2011.

Economic Research Foundation managing director Prof Sultan Ahmed Ismail said plastics were in almost everything that consumers used and inevitably, they had been ingested subconsciously by many.

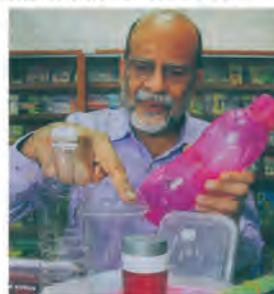
"We certainly wouldn't eat plastic knowingly but when you eat or drink things such as hot food and liquids stored in plastics, it may be ingested on items as well," he added.

Sultan Ahmed, who is from India, reminded the public to always determine the different plastics by the numbers embossed below the containers.

"Those with numbers one, two and five can be used to store food and drinks while those bearing numbers three, four and six are for general use and cannot store food or drinks.

"However, if the containers are Bisphenol A (BPA)-free, lycor it can be used for food and drinks."

A study by environmental scientists warns that tiny amounts of synthetic chemicals which are used in the processing, packaging and storing of food we eat can leach, interact and cause long-term damage to our health.



Sultan Ahmed: Plastic containers are differentiated by the numbers embossed beneath them

Media Coverage Ensures Information Reach Wide Range of Consumers

Penang farmers told to practise organic farming 2011/2013 New Straits Times

GEORGE TOWN: Farmers in Penang have been advised to turn to organic or natural farming. Agriculture and Agro-based Industry Ministry crop quality control division director Halimi Mahmud said the practice might be slightly more costly but it was safe and healthy for all.

"It is for the good of all," he said at the launch of a workshop on natural farming for sustainable living, here, recently.

About 100 people, mostly vegetable farmers, attended the weeklong workshop, organised by Consumers Association of Penang (CAP) and the Chemical Eco Research Foundation (CERF).

Halimi said there were only 125 vegetable farms with a total acreage of 1,500ha in the country which practised pesticide-free farming methods.

"The trend of eating safe or chemical-free food has become very popular over the past few years," he said.

"The public knows what is good for them and this is good for creating greater awareness of organic farming or farming methods which do not depend on pesticides and other chemicals."



(From right) Halimi Mahmud, S.M. Mohamed Idris and Dr Sultan Ahmad Ismail looking at plants that were grown organically. Pic by Malinda Abdul Malik

He said farmers interested in organic farming should register with the Malaysian Organic Certification Scheme (SOM) and Malaysian Good Agricultural Practices (Mygap).

SOM, introduced in 2003, is based on the Malaysian Standard MS1529:2001 — The Production, Processing, Labelling and Marketing of Plant Based Organically Produced Foods while Mygap was set up in August.

SOM and Mygap are aimed at guaranteeing safer vegetables and to comply with international standards on safe food for consumers.

Halimi said the ministry would provide training course and the natural farming method and techniques for farmers registered with SOM and Mygap.

He said the ministry would also conduct assessments on registered farmers to ensure that their farming practices met international standards.

He said their produce would carry the certified organic tags and their vegetables would fetch better prices.

"They will be between 20 per cent and 30 per cent higher priced, but they are in great demand due to increasing public awareness on safe food items, especially vegetables," added Halimi.

Also present were CAP president S.M. Mohamed Idris and CERF director Dr Sultan Ahmad Ismail. By Lee Hock Boon

TUESDAY, SEPTEMBER 9, 2014

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NEW STRAITS TIMES

CAP calls for chemical-free farming

NEGATIVE RESULTS: Consumers Association of Penang president S.M. Mohamed Idris says the indiscriminate use of chemicals in agriculture can result in the decline of pollinators such as honeybees and reduce crop yields

9/9/14 NST

MUHAMMAD SYAKIR ABDUL WAHAB
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THE Consumers Association of Penang (CAP) is advising farmers to switch to chemical free farming.

CAP president S.M. Mohamed Idris said chemical-free farming should be practised as it was not harmful to the ecosystem and farm environment.

"Pesticides are chemicals that are designed to be toxic to living organisms."

"In almost all parts of the world, low-level poisoning due to pesticide contamination of food poses a risk of developing chronic illnesses, including cancer, and respiratory and dermatological diseases."

"Indiscriminate use of the chemicals can result in the decline of pol-

linators such as honeybees and subsequently reduced crop yields," he said at CAP's office in Jalan Masjid Negeri.

Idris said farmers could keep pests in check through diversifying and rotating crops, inter-row planting, planting timing, tillage and irrigation, and using trap crops.

He urged farmers to make use of organic pest repellents such as holy basil leaves, ginger, garlic, yoghurt, cow urine, ash, turmeric and chilli paste.

The authorities, he added, should formulate policies, strategies and incentives for farmers to move towards natural and organic farming.

Integrated pest management expert N. Selvam said it was essential for farmers to enhance their knowledge of beneficial insects.

"Only 25 per cent of insects found on farms can be categorised as pests. The rest are beneficial insects."



N. Selvam (left) says farmers should learn more about beneficial insects which can help to keep pests under control. With him is S.M. Mohamed Idris. Pic by Nurulizmi Ismail

"Beneficial insects such as bees, spiders, ladybug beetles and green lacewings can keep pests under control by capturing and eating them," he said.

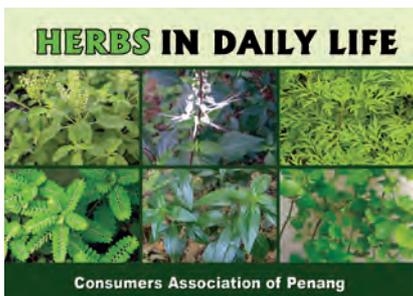
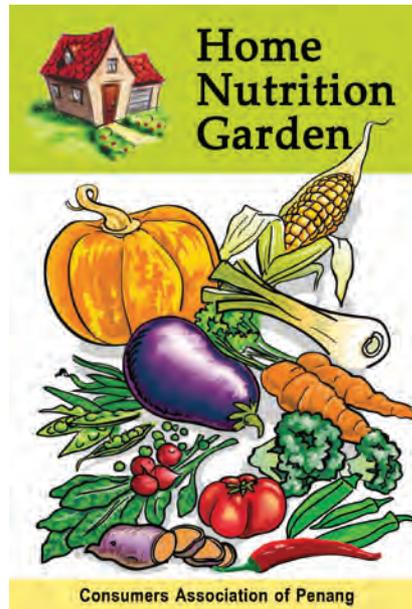
"Spraying pesticides is not the solution as it wipes out both beneficial and harmful insects."

Selvam said switching to chemical-free farming and natural farming methods can help farmers raise their yield and reduce expenditure on pesticides.

Intercropping with black gram, black-eyed peas and green gram can help to reduce pest damage.



Information on POPs and Safer Alternatives Creating Awareness through CAP's Publications





Malaysians come into direct contact with POPs when they consume food. Excessive use of pesticides, weed killers and other forms of chemicals in Malaysian farms means that each Malaysian gets a share of these dangerous pollutants through the food they consume and the air they breathe. The increase in chronic diseases among Malaysians is ample evidence of this.

This book contains case studies and activities related to the Consumers Association of Penang's efforts to create awareness about the dangers of POPs. It is our earnest hope that these activities will motivate others to move in the same direction in order to leave behind a toxic-free world for future generations.



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