

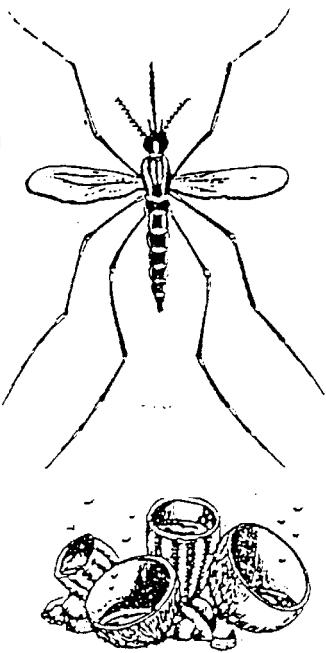
PCAM PEST INFO

Issue 4 (March) 1997

A Newsletter of the Pest Control Association of Malaysia



Tayar terpakai,
Botol-botol,
Bekas-bekas
terpakai



• Tempurung kelapa,
kulit buah koko

PEST CONTROL
ASSOCIATION OF
MALAYSIA



PROTECTING
MALAYSIANS
AND THEIR
ENVIRONMENT

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President wraps up PCAM's achievement before leaving office..

1t gives me great pleasure to warmly welcome our 4th issue of Pest Info. I consider this issue our special bounty edition for 1997.

I notice this issue is relevant to our daily professional pest control activities. Many of the articles in this issue are well written with in-depth research. It gives you, our valued PCAM clients, HOW? WHERE?, WHEN? WHY? to handle delicate pest problems with ease, confidence and profitable. As such I consider this special bounty issue timely.

I wish to express my sincere appreciation to the PCAM editorial boards and last but not least , Mr. Mohd. Azmi Ab. Rahim and Ms. Dayang Mediana who have spent so much effort and time to publish our special bounty issue.

I am satisfied with the hive-of-activities that my EXCOs (1995-1997) have professionally delivered to all concerned. Once again a BIG THANK YOU to all concerned especially my Honorary members, EXCOs, loyal active members, the relevant government agencies, Municipal and Local Councils' the private sectors who have directly or indirectly participated and assisted us all the way to make PCAM a recognised professional body.

Thank you all.

Cards Of Thanks



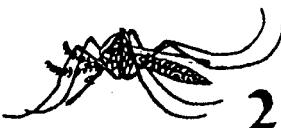
PCAM Activities Year 1995-1997 (April)

1995

- Official Launching of PCAM and Logo at University Malaya. All Exco including various press present.
PCAM 1st National Seminar 1995 and Inaugural Night, officiated by Deputy Minister of Agriculture and Deputy Minister of Health (24-25th March 1995)
"Field Test Study of Termite", special technical session with Velsicol Corp. Ltd. (USA), Dr. Dizon of WESCO Sdn. Bhd , PCAM Secretariat
Launching of "Codes of Ethics" (During Seminar 1995)
The 1st Basic Fumigation Training Course for Pest Control Specialist (11-16th September 1995)
Review for Fumigation Licensing Examination, ASEAN PLANTI
1st Dialogue session with the Pesticide Board of Malaysia, Jabatan Pertanian on Unapproved Usage of Pesticide in Malaysia, DOA, Jalan Gallagher, K. Lumpur
Hari Keluarga 1995 "Pest Free Environment";- Taman Pertanian Bukit Cahaya Sri Alam, Shah Alam (1st October 1995)
One Day Talk on "Safety With Purpose", CCM Bioscience Sdn. Bhd.; Shah Alam (17th October 1995)
Official Opening of PCAM Secretariat and PCAM Resource & Training Centre, Jalan Pandan, Kuala Lumpur
Launching of "Guidelines for Pest Control Operators, Malaysia" by MOH/PCAM
Launching of PCAM stickers nation wide.
Appointment of Honorary Members - Asc. Prof. Dr. Rohani Ibrahim and Dr. Nathan Ganapathy (UPM)
Discussion with Majlis Perbandaran Kelang, Selangor, on proposed privatisation of pest control project for PCAM

1996

- PCAM Seminar "Urban Pest Control For a Healthier Environment", Genting Highlands (22-23rd March 1996)
PCAM Newsletter Launching during PCAM Seminar
Discussion with Majlis Perbandaran Klang (MPK, Selangor)
Dialogue of fumigation problems DOA/MTIB (22nd May 1996)
Preventive and Maintenance Equipment Course, PCAM (11th July 1996)
Official visit by Mr. Syeik Yagob, President HKPCA, Dynasty Hotel, Kuala Lumpur.
Kursus Asas Pewasapan Bagi Teknisyen Pengawal Perosak (kali kedua) (19-21 Ogos 1996)



Nationwide membership drive (24th August 1996)
 Kursus Pengenalan Kepada Teknologi Pengawalan Perosak Urban 1 (19-21 November 1996)
 Safety at Construction Site, PCAM/KLCC; ILPP (14th November 1996)
 Seminar "Maximising Your Advertising & Promotion Ringgit", SUN/PCAM/National Panasonic (14th December 1996)
 Demonstration of Heavy Duty Hammer Drill by Hiphil for Exco members.
 Tropical Urban Pest Management, joint seminar USM/PCAM; UKM Bangi
 Tropical Timber & Termite Control in Wood, joint seminar UPM/PCAM; UPM Serdang
 Dialogue with Cawangan Penyakit Bawaan Vektor (KKM) and Johore Municipal Council and members of PCAM,
 Malaysia; Johor Baharu, (31st July 1996)
 Discussion with PCAS on Termite Specification and affiliation, Singapore (1st August 1996)
 Approval of affiliation with Hong Kong Pest Control Association (HKPCA); Pest Control Association of Singapore (PCAS);
 India Pest Control Association (IPCA); and Canada Pest Control Association (CPCA)



1997 (until April)

* Vehicle Maintenance & Trouble Shooting, Tan Chong Training Centre, P.Jaya (19th March 1997.)
 Pest Info Special Issue on Dengue (March 97)
 FOAPMA Seminar and HPCAS 10th Anniversary, PCAM members to attend. (7-9th April 1997)
 Management & Marketing Seminar cum AGM, (27th April 1997)
 Launching of Proposed Termite Treatment Specification for PCOs' and PCAM 1st official directory - Who's Who in Pest Control Industry (during AGM) (27th April 1997)

Last year was a terrific year for PCAM. The programmes for the year 1996 was successfully conducted. The main objectives of the programmes was to provide services for the members, and also to get funds to maintain the secretariat. Continuing last year's effort to serve members and to raise funds, it is proposed that the following activites (these activities proposed are subjected to approval by the next coming EXCO's) for the year 1997/1998:

PROPOSED TRAINING , PUBLICATIONS and GENERAL ACTIVITIES FOR 1997/98

JANUARY

No activties planned. (month of Ramadhan)

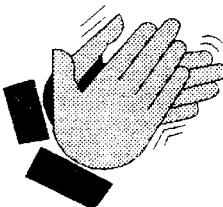
FEBRUARY

No activties planned. (month of Ramadhan and Chinese New Year)

MARCH

Pest-Info #4

Vehicle Maintenance for PCO's (1 day)



APRIL

HKPCA: FOAPMA Convention (7-9 April)

Management & Marketing Seminar cum PCAM AGM; launching PCAM official directory - who's who in Pest Control industry and Soil Treatment Specification

MAY

Cara-cara Betul Guna Racun Makhluk Perosak (1 hari)

Safety in Use of Power Drills & Hammers (PCAM/DeWalt) (1 day)

Certificate in Urban Pest Control Technology Module 3 (Introduction to Urban Pest Control 2)*

JUNE

Pest-Info #5

Workshop on Recent Development in Termite Control (1-2 days) ARAM/PCAM

Seminar: Electronic Pest Repelling Devices (1 day)

Certificate in Urban Pest Control Module 4 Structural Pests and Commensal Rodents(3 days) *



JULY

Module 5 (Urban Sanitary Insects & Disease Vectors (3 days)
Safety at Construction Sites (1 day)

AUGUST

First Aid for PCO's (1 day)
Fumigation for PCO's (5 days) *Module 7]



SEPTEMBER

Pest-Info #6
Module 8 (Wood Destroying Organisms and Household Pests (3 days)
Pengurusan Keselamatan & Kesihatan Pekerja-pekerja (2 hari)

OCTOBER

Introduction to Urban Pest Control (3 days)
Module 9 (Pest Management in Health facilities, Supermarkets, and other specialised areas) (4 days)

NOVEMBER

Effective advertising (SUN/PCAM)
Urban Pesticide Application Technology (UPAT) PCAM/UPM (3-4 days)
PCAM Pest Magazine

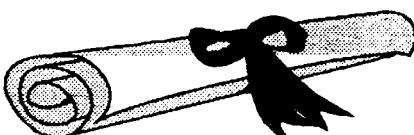
DECEMBER

Family Day
Pest-Info #7
Module 10 (Urban Wildlife and control techniques) (3 days)



Others:

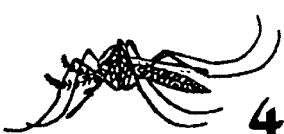
Talks (Institutions, Clubs, Organizations etc)
Discussion/Meetings - MOH (Endorsement of Training Programmes)
Pest Control Specifications
Manuals/Guidebooks
Visits (Association, TV3 etc)
Affiliations
Product Launching (Suppliers)
Annual Meeting/AGM



CONCLUSION

President & Chairman PEST INFO

(Prepared by: Tn. Hj. Hussein Kamal Omar (President, PCAM) and MAAR.)



Dear honorable members, like what was announced in Pest Info #3, this issue is a special on Dengue. Dengue was selected because Pest Info felt that a number of PCOs' are seriously involved in the prevention of this disease outbreak. This dreaded disease is here to stay awhile in Malaysia and control programmes are on going. It is therefore proper then for Pest Info to try to disseminate what ever information available that can be utilised to improve the services to control the outbreak. Pest Info in future issues, will continue to have specials on other pests too.

Members who are interested in getting more informations about insect vector control can purchase this manual "PANDUAN PENCEGAHAN DAN KAWALAN PENYAKIT DENGKI/DEMAM DENGKI BERDARAH" daripada IBU PEJABAT RANCANGAN KAWALAN PENYAKIT-PENYAKIT BAWAAN VEKTOR, KEMENTERIAN KESIHATAN MALAYSIA, JALAN CENDERSARI, KUALA LUMPUR

DENGGI (Demam Denggi/Demam Denggi Berdarah) - Setakat Mana Penglibatan PCOs'



Kali pertama penyakit demam denggi di laporkan di Malaysia ialah pada tahun 1902. Tetapi demam denggi yang serius iaitu demam denggi berdarah cuma di kenali pada akhir tahun 1962 apabila wabak ini berlaku di Pulau Pinang. Semenjak itu, penyakit demam denggi/demam denggi berdarah telah bertapak di Malaysia terutama di kawasan bandar dan juga di kawasan separa bandar.

Demam denggi adalah satu penyakit yang dijangkitkan oleh nyamuk *Aedes* (*A. Aegypti* atau *A. Albopictus*). Nyamuk ini menggigit pada wal pagi dan lewat petang, berihat dalam rumah dan membiak

dalam air jernih yang terdapat dalam takungan air di dalam dan sekitar rumah. Tempat pembibitan aila bekas air, perangkap semut, bekas bunga, kolah dalam rumah, bekas iar dan paip hujan di luar rumah.

Penyakit demam denggi merupakan masalah kesihatan awam yang penting di Malaysia. Tanda-tanda penyakit ini ialah demam mengejut, sakit tulang-tulang sendi, otot-otot dan biji mata, pendarahan pada badan, hidung dan mulut. Penyakit demam denggi/demam denggi berdarah disebabkan oleh sejenis virus yang di bawa oleh nyamuk *Aedes* ini. Penyakit ini sangat bahaya dan boleh menyerang samada dewasa atau kanak-kanak. Mengikut laporan dari Kementerian Kesihatan Malaysia, bagi tempuh lima tahun kebelakangan, bilangan kes yang di lapurkan, kadar insidens dan kejadian wabak adalah masih tinggi.

Jadual 1. Bilangan Kes Denggi dan Kadar Insidens (1991-1995)

TAHUN	BILANGAN KES	KADAR INSIDENS (PER 100,000)
1991	6,628	36.41
1992	5,473	29.38
1993	5,615	29.46
1994	3,3133	16.06
1995	6,543	32.79



Jadual 2. Taburan Bilangan Kes Denggi dan Peratus Mengikut Negeri-negeri di Malaysia (1994-1995).

NEGERI	1994		1995		PERATUS
	BILANGAN KES	PERATUS	BILANGAN KES	PERATUS	
PERLIS	7	0.22	10		0.15
KEDAH	41	1.31	40		0.61
P. PINANG	423	(3)*	13.50	424	6.48
PERAK	175	(1)*	5.58	539	(2)*
SELANGOR	656	(2)*	20.94	1,213	(8)*
W. PERSEKUTUAN	436	(1)*	13.92	1,506	(4)*
N. SEMBILAN	40		1.28	235	
MELAKA	30		0.96	43	(1)*
JOHOR	525	(1)*	16.76	1,175	(3)*
PAHANG	236	(2)*	7.53	528	(4)*
TERENGGANU	46	(1)*	1.47	86	(2)*
KELANTAN	19		0.61	94	(1)*
SABAH	133		4.24	226	
SARAWAK	366	(2)	11.68	424	(3)*
MALAYSIA	3,133	(13)*	100.00	6,543	(28)*
					100.00

Nota: () = Bilangan Kematian

Dengue and mosquitoes

Michael Bywater does a request, and tries not to embarrass a reader.

Dengue fever hits a high in Singapore

SINGAPORE, Sat. tal of 551 dengi cases were reported in Novem highest month; ever, the *Straits newspaper* said to.

The daily quoted environment. Mins saying 2,575 deng cases had been re far this year again cases for all of 1995.

It also said the reported in No were more than t number in the month last year, not give the No 1995 figure. It also specify what the r high figure was fo gile month.

Sistem zon perintis banteras penyakit

KUALA LUMPUR: Sistem Zon membabitkan 17 kawasan yang dipercayai bawah kawalan penyelia atau ketua jabatan dalam Hospital Kuala Lumpur (HKL) untuk memerlukan ancaman dengan dikatakan perintis usaha pembasmar penyakit itu.

Timbalan Pengarah HKL, Dr Ramlee Rahmat berkata sistem itu yang diselia oleh beliau sendiri dengan bantuan Inspektor Kesihatan, Shahidan Yahaya terpaksa dilaksanakan selepas kawasan hospital itu dikenal pasti temparan penyakit nyamuk aedes.

Menurutnya, pembentukan Jawatankuasa Denggi membabitkan pengurusan HKL, Institut Penyelidikan Perubatan Fakulti Perubatan Universiti Kebangsaan Malaysia (UKM), Dewan Bandaraya Kuala Lumpur (DBKL) dan orang ramai. sistem zon itu adalah kaedah terbaik menanganiinya.

"Inspektor Kesihatan yang diantaranya oleh Kementerian Kesehatan untuk membantu HKL menangani masalah ini bertindak sebagai sekretariat untuk jawatankuasa itu berbanding lebih agresif."

"Jawatankuasa itu diwajibkan mengadakan mesyuarat khas setiap bulan untuk membolehkan sekretariat menilai keberkesanan usaha pembasmar yang dilaksanakan mengikut zon-zon itu."

"Projek perintis ini belum pernah dilaksanakan di hospital lain dan kami yakin jika projek ini berjaya, ia boleh menjadi contoh agen pembasmar penyakit ini," katanya.

Beliau berkata, melalui sistem itu, setiap penyelia yang dipilih khas termasuk wakil setiap biok kuarters HKL akan dapat memastikan zon masing-masing bebas daripada pembiakan nyamuk.



Showing a good example

NO, THERE is no dengue alert. But United Overseas Australia Ltd (UOA) is not taking any chances.

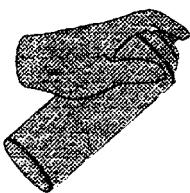
The company has ...

NEW STRAITS TIMES, WEDNESDAY, JANUARY 28, 1997

NEWS

Dengue: 2 deaths, 100 treated in new village





Faktor-faktor yang menyebabkan wabak adalah seperti berikut:

- (i) Pertambahan perkembangan perbandaran dan perancangan bandar yang tidak teratur yang menimbulkan kawasan setinggan tanpa bekalan air, tanpa perkhidmatan pembuangan sampah dan saluran yang tidak sempurna.
- (ii) Kekurangan bekalan air di kawasan bandar yang menyebabkan penduduk menyimpan air secara takungan.
- (iii) Kekurangan atau tanpa perkhidmatan membuang sampah mengakibatkan bertambahnya tempat pembiakan nyamuk Aedes seperti tin, botol, tayar dan sebagainya yang dibuang merata-rata.
- (iv) Simpanan air hujan bagi maksud menyiram pokok bunga atau membasuh.
- (v) Tabiat yang tidak diingini seperti membuang merata-rata bekas/takungan air dalam rumah.
- (vi) Perasaan berpuashati dan tidak apa di kalangan penduduk terhadap memusnakan tempat pembiakan nyamuk **Aedes**.

Negeri-negeri yang sering dilanda wabak penyakit ini adalah negeri yang maju, pesat membangun dari segi perbandaran dan kepadatan

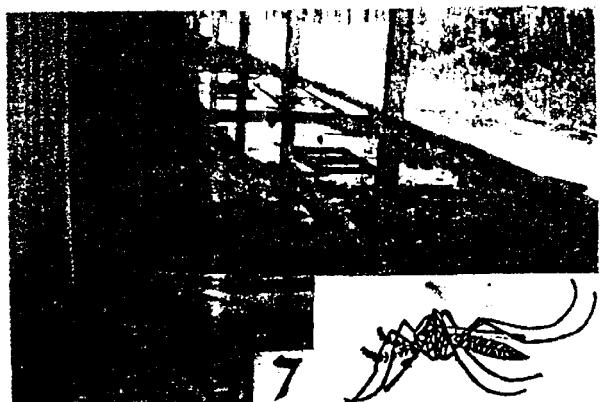
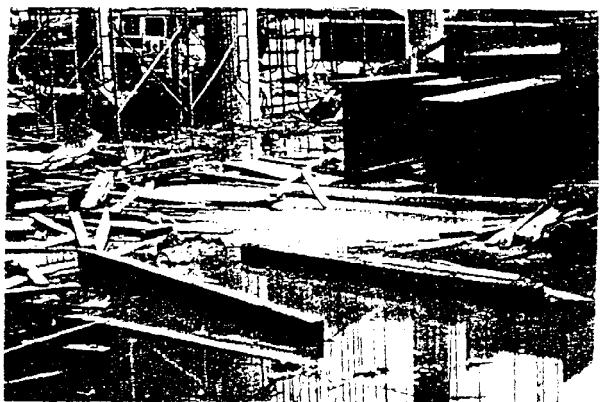


**MOSQUITO BREEDING AREA
(CONSTRUCTION SITES)**

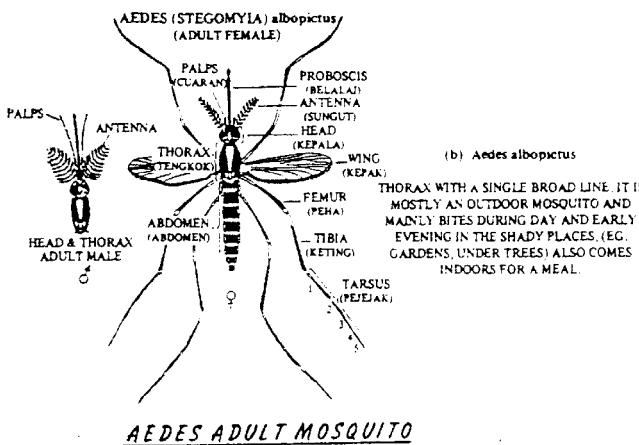
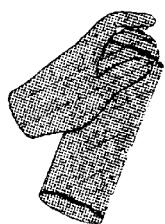


penduduknya seperti Pulau Pinang, Perak, Selangor, Wilayah Persekutuan (Kuala Lumpur) dan Johor. Kewujudan projek pembinaan di bandar-bandar tanpa melakukan aktiviti kawalan Aedes juga di percaya sebagai penyebab utama kejadian demam dengan dan wabak bagi sesetengah negeri. Negeri-negeri lain juga terlibat tetapi tidak seteruk dan penyakit ini hanya terhad di kawasan bandar sahaja. Negeri-negeri yang menunjukkan kadar insidens yang tinggi adalah Wilayah Persekutuan Kuala Lumpur, Selangor, Johor, Pahang, Pulau Pinang, Negeri Sembilan, Sarawak dan Perak. Lihat Jadual 2 di bawah.

**MOSQUITO BREEDING AREA
(CONSTRUCTION SITES)**



VECTORS OF DENGUE HAEMORRHAGIC FEVER IN MALAYSIA



Jadual 3. Taburan bilangan kes demam denggi dan demam denggi berdarah bagi negeri-negeri pada tahun 1994-1995 adalah jadual di bawah

NEGERI	1994			1995		
	DD	DDB	JUMLAH	DD	DDB	JUMLAH
PERLIS	7	0	7	10	0	10
KEDAH	40	1	41	34	6	40
P.PINANG	357	66 (3)	423 (3)	392	32	424
PERAK	172	3 (1)	175 (1)	511	28 (2)	539 (2)
SELANGOR	603	53 (2)	656 (2)	1,132	81 (8)	1,213 (8)
W.PERSEKUTUAN	402	34 (1)	436 (1)	1,441	65 (4)	1,506 (4)
N. SEMBILAN	38	2	40	223	12	235
MELAKA	29	1	30	37	6 (1)	43 (1)
JOHOR	497	28 (1)	525 (1)	1,124	51 (3)	1,175 (3)
PAHANG	224	12 (2)	236 (2)	516	12 (4)	528 (4)
TERENGGANU	36	10 (1)	46 (1)	80	6 (2)	86 (2)
KELANTAN	15	4	19	59	35 (1)	94 (1)
SABAH	126	7	133	215	11	226
SARAWAK	331	35 (2)	366 (2)	382	42 (3)	424 (3)
MALAYSIA	2,877	256 (13)	3,133 (13)	6,156	387 (28)	6,543 (28)

Not: () = Bilangan Kematian



No let-up in war against dengue

THE Solaron State Department of Health wishes to refer to the issues raised by J.S. Choo from Klang in his letter dated 10 Feb 1997.

All fogging operations are carried out in accordance with specific guidelines and instructions.

AN MALAYSIA KHAMIS 25 JULAI, 1996



Utusan Kota

Projek diberhentikan jika membiak aedes



Semasa

HD YUSWANDI MAJID

IMPAN JAYA 24 Juta — Majlis Perbandaran Impian Jaya (MPIJ) mengatakan para pemohon hak untuk mendanai projek pembangunan di kawasan perbadanan boleh dipenuhi bantuan kerajaan jika mempunyai kemudahan kajian kerangka yang semakin baik dan menghalang muatan rumah.

Diperitus MPIJ, Abdul Karim Munisar berkata, tidak lagi ada maklumat mengenai bantuan kerajaan pembentukan vanclidea impunai kemudahan kajian kerangka yang semakin baik dan menghalang muatan rumah.



ABDUL KARIM MUNISAR

beratapahnoe kes demam denggi di kawasan ini," katanya.

Beliau berkata demikian selepas pemberita sebelumnya

RTM rusuhan di kawasan itu tidak berjaya.



EMAK... Sistem saliran tidak berjaya menjadi tempat nyamuk membiak. — Gambar YAHAYA HASHIM

DENGGI DI HKL SERIUS

Dleh Fadzil Abd Rashid

KUALA LUMPUR: Kebangkitan Hospital Kuala Lumpur (HKL), orang ramai dan resikit terdedah kepada angkitan virus denggi kerana kawasan persekitaran hospital itu dikenal pasti sebagai tempat pembibitan nyamuk aedes paling serius.

Timbalan Pengarah HKL, Dr Ramlee Rahmat berkata bahawa jumlah kasus HKL yang dikira dirawat di hospital itu sepanjang tahun lalu akibat empat denggi dan kes terlaru juga kaitangan termasuk daripada Jabatan Farmasi yang serang dengan demam itu dalam empoh dua dan tiga minggu sahaja.

"Malah ada doktor turut serang dengan demam berkenaan erana kami berdepan dengan empat faktor utama atau kemungkinan pesakit enggi, struktur bangunan ang memudahkan penempahan nyamuk aedes sistem

skrap orang ramai sendiri," katanya.

Menurutnya, persekitaran kawasan kuarata kaitangan HKL lelu kurang kurang 70 meter dari bangunan Hospital Bersebelan adalah antara tempat pembibitan nyamuk aedes.

Katanya, selepas mendapat kehadiran senyuman gawai, pengurusan HKL berturut-turut ceyat mewujudkan Jawatankuasa Denggi membibitkan semua kaitangannya. Dewan Bandaraya Kuala Lumpur (DBKL), orang ramai dan pertubuhan bukan kerajaan selepas menerima maklumat

ia dipecahkan kepada tugas-tugas khas membabitkan kawasan sebuah jalan, wad atau klinik di sekitar kawasan HKL.

"Melalui sistem ini, kami dapat menyalas program Perang Aedes dengan lebih efektif kerana semua penyedia termasuk juga ketua sebuah jabatan bertanggungjawab penuh terhadap usaha ini," katanya.

Beliau menegaskan, ini tidak bermakna pengurusan HKL mengambil alih seluruh amanah aedes ini hingga membiarkan kebimbangan masyarakat secara mence-



DR RAMLEE... HKL perang aedes.

**FROM
THE NEWS**

Jadual 4.Ringkasan kes-kes denggi di Malaysia

TAHUN	1994	1995
JUMLAH KES	3,133	6,543
DEMAM DENGGI	2,877	6,156
DEMAM DENGGI BERDARAH	256	387
KAWASAN		
BANDAR	2,704 (11)	5,402 (22)
LUAR BADAR	429 (2)	1,141 (8)

prepared by: MAAR/97



FOGGING AS A DENGUE CONTROL MEASURE

The objective of fogging in vector control is to achieve the rapid knock-down and killing of adult mosquitoes in the affected area with safe insecticides e.g. malathion, Reslin and other pyrethroids/synergised pyrethroids.

WHAT ARE FOGS?

Fogs are clouds of fine droplets of insecticide varying in size between 5 and 50 μ (microns). They are so small that they can remain suspended in the air for long periods of time. Droplets less than 5 μ in diameter have suitable drift characteristics, but do not readily impinge on mosquitoes. Conversely, droplets larger than 25 μ in diameter have suitable impingement characteristics but do not drift sufficiently. Droplets larger than 50 μ in diameter can spot paint work of cars and this should be avoided.

HOW ARE FOGS GENERATED?

Fogs can be generated thermally or mechanically.

- (a.) **Thermal fogs:** thermal fogs are produced when a suitable formulation condenses after being vapourised at high temperature. Thermal fogs can be oil-based or water based. Oil based solutions produce white clouds of white smoke while water-based solutions produce a colourless mist. Both are equally effective. The droplet (or particle) size is usually less than 15 μ in diameter, depending on the insecticide flow rate used.
- (b.) **Cold fogs:** cold fogs are mechanically generated aerosols by cold foggers (Ultra Low Volume [ULV] fogging machines). ULV fogging is a method of application of a minimum volume of liquid insecticide formulation (usually less than 500 ml/hectare) per unit area. Which provides maximum efficiency in killing target vectors. For mosquito control, the optimum droplet size is within 10-15 μ in diameter. Again the insecticide flow rate affects the size of the droplets formed.

THERMAL FOGGING VS. ULV FOGGING

Both methods are equally effective if the correct procedure and correct formulation are used.

There are however instances where thermal fogging is the only possible method, e.g.

- 1. Areas of inaccessible by ground ULV.
- 2. Multi-storey building
- 3. godowns, warehouses

- 4. Covered drainage, sewers, septic tanks.

Where ULV fogging have the advantages over thermal fogging:

- 1. There is need of costly chemicals.
- 2. There is a smaller volume of insecticide to be carried in the fogging location, elimination of storage and mixing problems.
- 3. The droplet size is more uniform (for more effective kill) and the formulation is non-volatile.
- 4. Lower pollution and less traffic hazard.

WHEN IS THE RIGHT TIME TO DO FOGGING?

All fogging operations are dependent upon having the right weather conditions, provided it is not raining and wind speed is not too high.

a. Time:

The best period for fogging (thermal fogging or ULV) are in the early morning after dawn for two hours (6.30 to 8.30 am) and the late afternoon/early evening (5.30 to 8.00 pm), when the air movement is relatively stable.

There are recommended for the following reasons:

- **adult Aedes mosquitoes are most active at these hours.**
- **Insecticidal fogs are not very effective when applied in the middle of the day because warm air rises from the ground as convection currents and prevents concentration of the fog close to the ground where adult mosquitoes are flying or resting.**
- **In the early evening, there is usually a ground-based temperature inversion (i.e. an increase in temperature with height in the atmosphere). There is a higher heat radiation leaving the ground surface into the cooler air above. The reduced vertical turbulence is commonly associated with temperature inversion conditions. This can be seen to exist when the smoke from small fire rises a little, then spreads out horizontally.**

(b) Wind:

- **Light and steady wind is ideal for fogging. It enables the fog to move slowly and steadily over the ground. Optimum ground winds for fogging operations are between 3-13 kph. Air movements of less than 3 kph may allow vertical mixing while breezes greater than 13 kph reduce the time that the mosquito are exposed to the fog and disperses the fog too quickly. The**



strong wind also tends to cause the droplets to become smaller in diameter and increases risk from drift.

(c) Rain:

- ULV or thermal fogging application should never be carried in heavy rain. Work is permissible in light showers. A good rule to go by especially for ULV is to stop spraying when the windshield wipers have to be left on. When rain gets heavy, stop spraying and turn down the spray head of the ULV machine to prevent water entering the blower through the spray head.

(d) Relative Humidity and Temperature:



- Generally, the relative humidity appears to have more effect on mosquito activities than temperature. Mosquito activity increases when the relative humidity reaches 90% especially during light showers.

FREQUENCY OF FOGGING OPERATIONS:

Fogging operations are to be carried out as soon as possible once a suspected DF/DHF case is notified over an area of 200 meters radius from the house where the case was reported. Fogging should also be done in the work areas (office, factory, school, etc.) if there is evidence of transmission in these areas. As a rule, at least one treatment should be carried within each breeding cycle of the mosquito (7-10 days for *Aedes*). Therefore, a repeat fogging is carried out after 7-10 days after the first fogging.

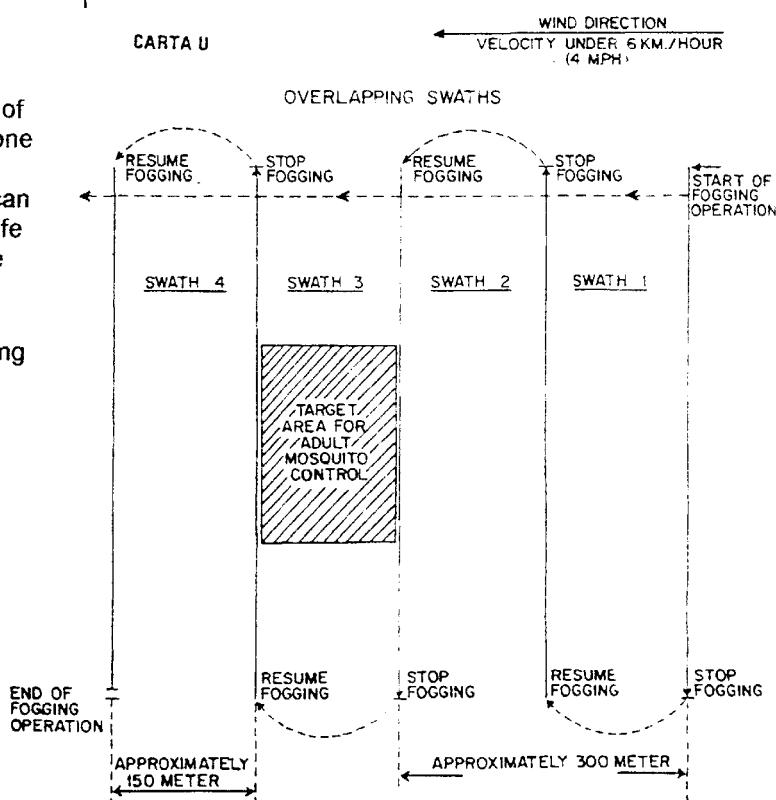
The conditions most suitable for fogging can be summarised as follows:

Condition	Most favourable	Average	Unfavourable
Time	Late evening or early morning	Early to mid morning/late afternoon, early evening	Mid morning to mid afternoon
Wind	Steady between 3-13 kph	0-3 kph	Medium to strong over 16 kph
Temperature	Cool	Average	High ground temperature causing convection currents

FOGGING PROCEDURE (THERMAL/ULV)

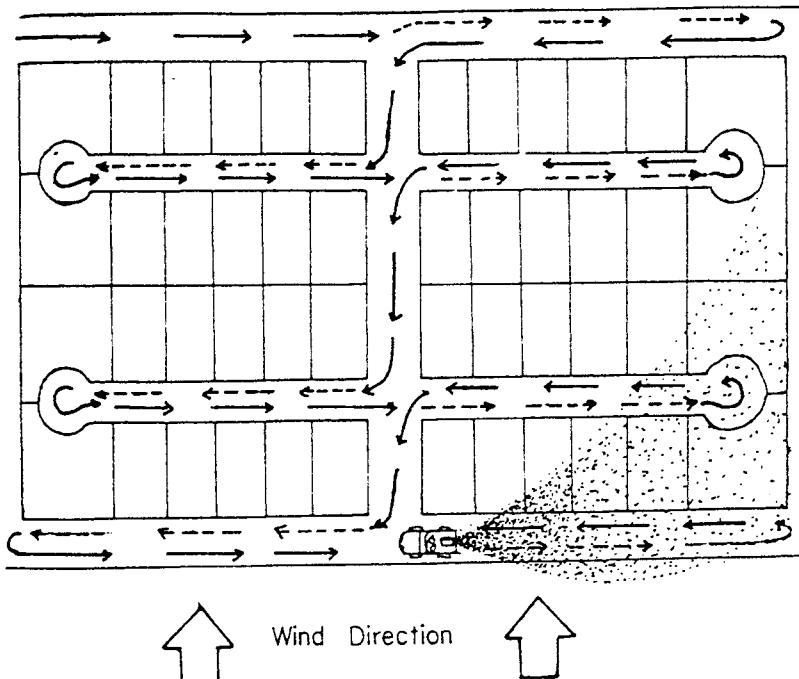
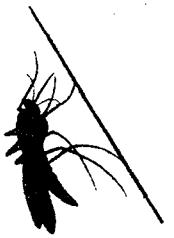
Before fogging is conducted, a careful study of the street maps of the area to be fogged should be done by the fogging team. Residents should be warned before the fogging operations proceed so that food can be covered, fire extinguished and pets removed to safe areas with the occupants. At the fogging location, the team leader should note the wind direction. Fogging should be done from downwind to upwind direction. For vehicle mounted ULV or thermal fogging machines, try to drive at right angles to the wind direction if possible. See charts below.

SUGGESTED ROUTE FOR
FOGGING OPERATION
BY LECO H.D. MACHINE



CARTA V

SUGGESTED ROUTE FOR
FOGGING OPERATION
BY LECO H.D. MACHINE



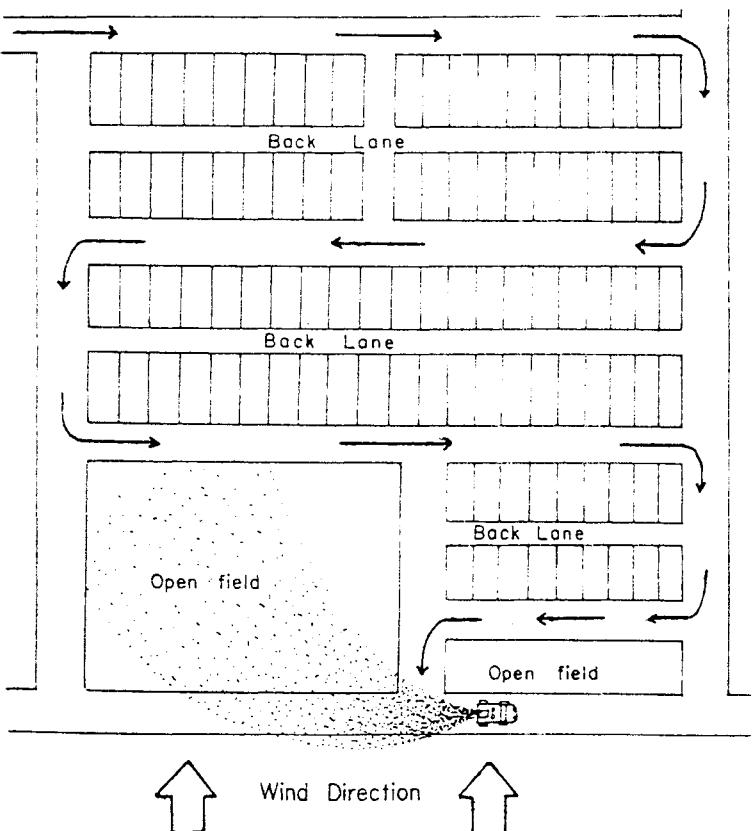
→ No fogging.

→ Fogging.

ULV fogging in an area with dead-end streets, fogging is done while coming out, not going in.

CARTA W

SUGGESTED ROUTE FOR
FOGGING OPERATION
BY LECO H.D. MACHINE

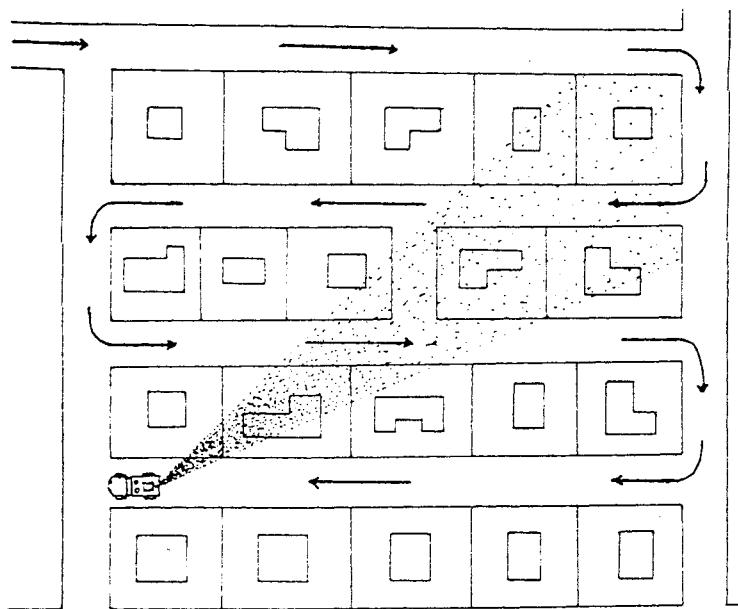


ULV fogging in an area with narrow roads, houses close to roadside, backlanes need not be fogged. Spray head should point directly at the back of the vehicle.

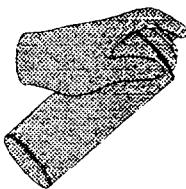
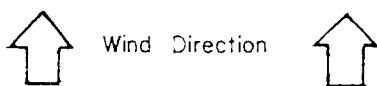


CARTA X

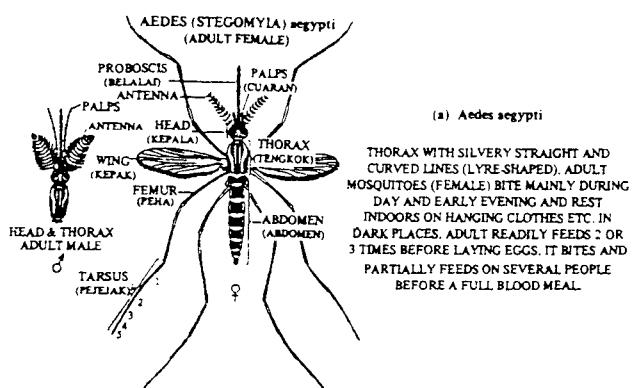
SUGGESTED ROUTE FOR
FOGGING OPERATION
BY LECO H.D. MACHINE



ULV fogging in an area with wide streets. houses far from roadside. Note spray head should point out from the side at an angle



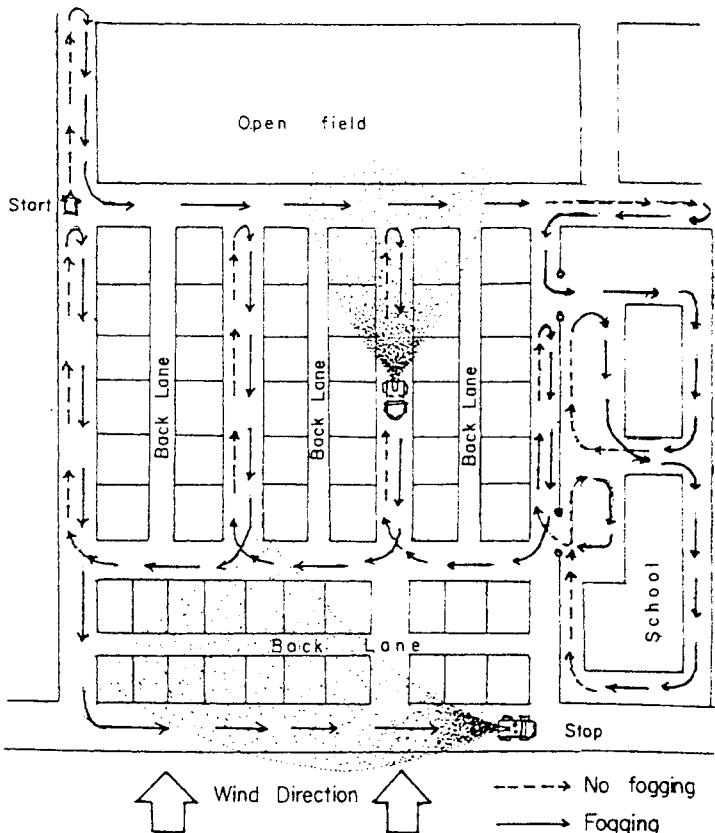
VECTORS OF DENGUE HAEMORRHAGIC FEVER IN MALAYSIA.



AEDES ADULT MOSQUITO

CARTA Y

SUGGESTED ROUTE FOR
FOGGING OPERATION
BY LECO H.D. MACHINE



ULV fogging in an area where streets run parallel and perpendicular to the direction of wind. Note that fogging is only done while vehicle travels upwind.



(b) Thermal Fogging (portable thermal foggers)

- Use for house to house fogging. All windows and doors should be shut for $\frac{1}{2}$ h after the fogging to ensure good penetration of the fog. This will achieve the maximum knockdown and kill the mosquitoes in the fogged area.
- In small single storey houses e.g. 3 bedroom terrace house, fogging can be done from the front door or through an open window without having to enter every room of the house. In this case, bedroom doors should be left open to allow penetration of the fog. Over-fogging should be avoided as this increases the risk of fire or explosion especially in small rooms.
- When fogging outdoors, direct the fog at all possible mosquito harbouring locations, e.g. hedge fencing, covered drains, bushes and any tree-shaded areas.
- When fogging with thermal foggers, the same technique is applied, that is fogging downwind

For the Dengue mosquito control, several chemicals are available in the market. Here is a **partial list** of chemicals that are registered and used for the control of dengue mosquitoes.

Product	Recommended Dosage	Life Stages	Remarks	Sprayer/application
Sumithion 40WP	250g/18L water	Larvae	Perificol/Residual application to breeding places	1/Manual knapsack sprayer (Jacto PJ-18) 2/Maruyama MS056 Knapsack Power Sprayer
Sumithion L-40S	500 ml + 10 L Diesel	Adults	Thermal Fogging	1/Push-cart Type Mist Spraying/Fogging Machine MF400 2/Normal fogging machine
	500 ml/ha	Adults	Space ULV (Outdoor)	Push-cart type ULV Machine Model LVE3501
	0.05 ml/m ³	Adult & Larvae	Indoor ULV Application	1/Maruyama MD300 Mist Blower (Portable ULV Machine)
Icon 2.5 EC	1-2g ai/ha	Adult	Space	Thermal fog
	1g ai/ha	Adult	Space	Cold fog (ULV)
Actellic	100g-200g ai/ha	Adult	Space	Thermal fog
	50 g ai/ha	Larvae	Shallow water	Larvaciding
	500g ai/ha	Larvae	Deep water	Larvaciding
Malathion ULV/100E/ 500/57%/ 50%/25%		Adult	Space	Thermal fogging ULV
		Larvae	Water	Larvaciding
Abate 1%	1 mg Abate per 1l water	Larvae	Stagnant water	Larvaciding
Reslin	na	Adult	Space	ULV/Thermal Fogging
Responsar ULV 15	150 ml/ha	Adult	Space (outdoor)	Thermal fog
	5ml/100m ³	Adult	Space (indoor)	Thermal fog
	5 ml/100m ³	Adult	Space (indoor)	ULV
BMP 144 (2X) SC	1,200 ITU /mg (<i>B.thuringiensis israelis</i>)	Larva	Stagnant water	Larvaciding

Prepared by: MAAR/Jetrapest Consultancy



Aedes mosquitoes

1. What is aedes mosquito ?

It is a particular mosquito that is responsible to spread Dengue Fever and Dengue Haemorrhagic Fever from one person to another. It can easily be recognised by its black colour with white spot all over the body and white rings on the leg.

2. When does Aedes mosquito bite for blood meal ?

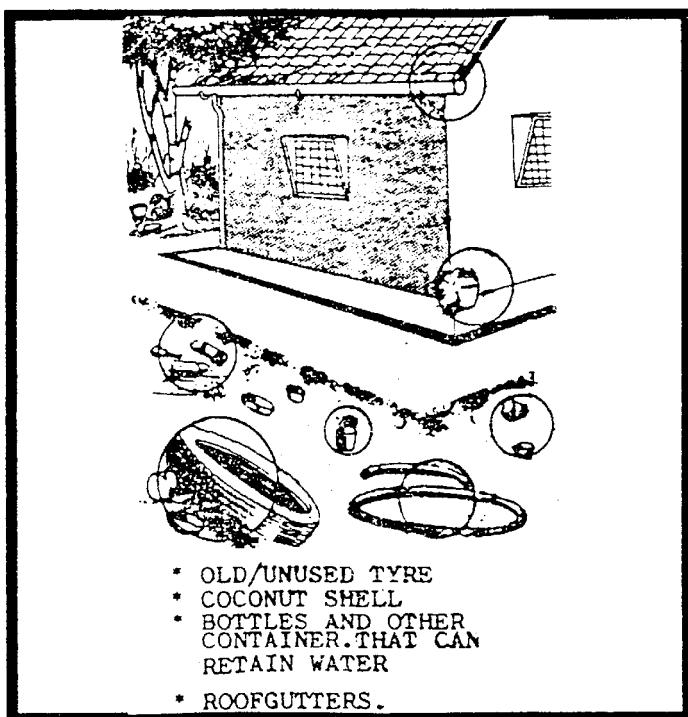
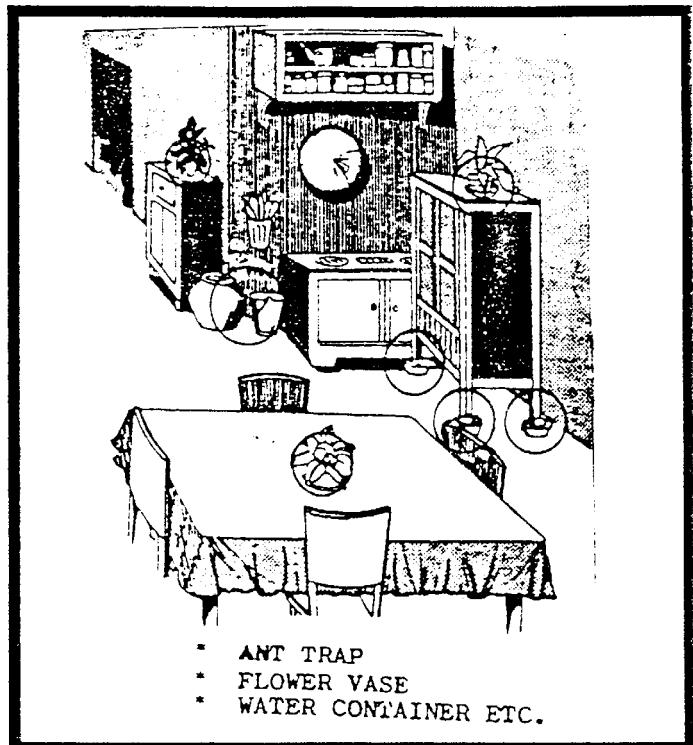
Aedes Aegypti usually stays in the house and bite during the early morning (peak hour 6-7 am). **Aedes Albopictus** usually stay and breed outside the house and prefer to bite at late afternoon (peak hour 6-7 pm).

3. Where does Dengue Aedes mosquito live ?

Aedes mosquito are (container mosquitoes) . This means that the female lays her eggs in water container. This containers may be any that are found in and around houses. In nature this mosquitoes may breed in the following types of containers, called natural containers :

- ◆ Tree holes
- ◆ Bamboo leaves, some Plum leaves, Yam leaves etc.
- ◆ Coconut shells
- ◆ All fallen leaves
- ◆ Bamboo stumps and so on.

- ◆ Flower vases
- ◆ Old tyres
- ◆ Buckets
- ◆ Or any container which holds water for a week or more.



Around houses or indoors these mosquitoes may breed in the following types of containers, called artificial containers :

- ◆ Ant traps
- ◆ Water storage jars,
- ◆ Storage tanks
- ◆ Old tins, jars, bottles

IMPORTANT: Aedes mosquitoes do not breed in ponds, drains and ditches.

IMPORTANT: Aedes mosquitoes often breed right inside houses, especially in kitchens and wash rooms.

4. What is the life cycle of the Aedes Mosquito ?

Like all mosquitoes Aedes has four main stages in the life cycle.

(i) EGGS Eggs are laid at the edges of the water in containers.

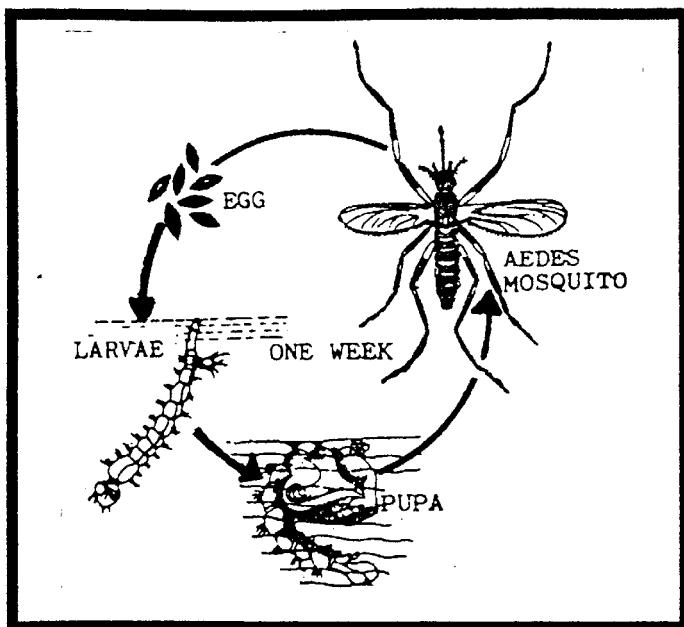
(ii) LARVA This is the growing stage of the mosquito. The larva is a small worm-like creature which feeds on tiny foods particles in the water.

(iii) PUPA This is a resting stage during which the larva changes to an adult inside the pupal skin.

These three stages are found in the water inside containers.

(iv) ADULT Aedes are small black and white mosquitoes (Tiger mosquito). The male does not suck blood but feed on pollen and plant juices. The female needs a blood meal for her eggs to grow. Aedes females like to feed on human blood.

LIFE CYCLE OF AEDES MOSQUITO



5. How long Aedes mosquitoes live ?

EGGS	Up to several month in dry containers. In water they hatch in 1-3 days.
LARVA	In tropical condition usually about 5 days.
PUPA	2-3 days.
ADULT	Up to several months.

6. How long does it take Aedes to grow from egg to adult?

It can take as little as 7 days (1 week).

7. How many eggs does a female Aedes lay?

The maximum number of eggs recorded for a single mosquito is nearly 900. About 50-100 eggs are laid every 4-5 days.

8. What happens when an Aedes mosquito bites a person with DHF?

The DHF virus grows (multiplies) in the stomach of the mosquito for about 10 days. Then the mosquito becomes a carrier and can pass the disease on to new persons. The mosquito will be a carrier now for as long as it lives. When the mosquito bites it will take about 5 days for the disease to show itself (incubation period).

9. How can Dengue Fever be controlled?

Because there is no vaccine for the dengue virus or a cure for this deadly disease, dengue must be controlled by attacking the vector mosquito. The most important to do this is :

GET RID OF BREEDING PLACES (SOURCE REDUCTION)

10. What can families and properties owners do to protect themselves from Dengue Fever?

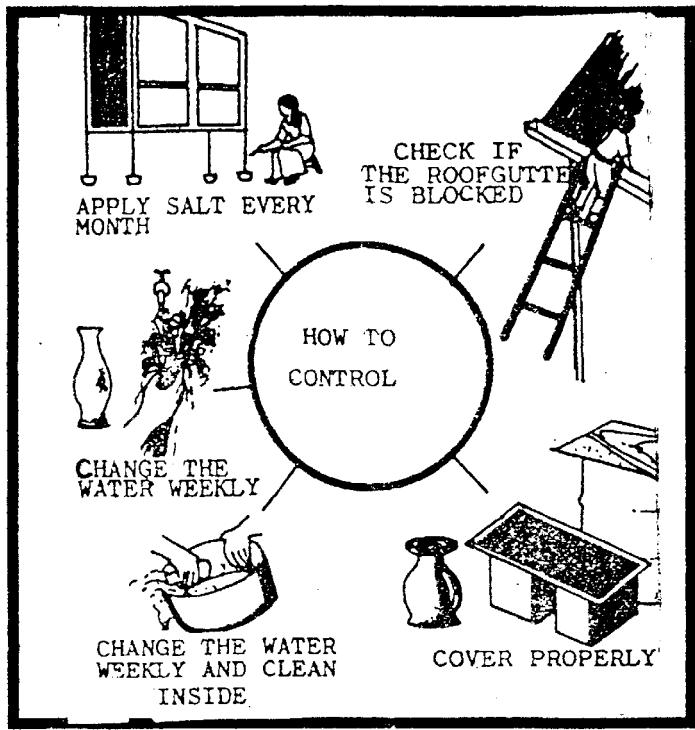
- (a). Never throw away unwanted containers of any kind where they can collect water.
- (b). Inspect the house and compound **ONCE A WEEK** for breeding places.
- (c). When disposing of tins, open both ends and then crush as flat as possible. Burn and bury them if there is no council garbage disposal service.
- (d). Keep rain water tanks covered with mosquito proof screening.
- (e). Empty water storage tanks or jar at least **ONCE A WEEK**. Scrub the inside of these containers to remove eggs. Water jars should also be provided with a mosquito proof covers.
- (f). Place 2 teaspoonful of salt **ONCE A MONTH** in each ant traps.
- (g). Empty flower vases at least **ONCE A WEEK**. Scrub the inside to remove eggs.
- (h). Never leave containers with water around the house where they may be forgotten.
- (i). Get rid of old tyres, or store them away where they cannot collect water. Put 2-3 large spoons of salt inside before storing in case there is a little water left.
- (j). Fill bamboo stumps or other natural containers with sands or cement to prevent breeding.
- (k). Keep fish bowls and tanks covered with mosquito screening.
- (l). Maintain all drains in proper order. **DO NOT** allowed garbage or mud to accumulate. If possible, flush house drains out **ONCE A WEEK**.
- (m). Fill up any holes or cracks in cement floors with new cement to prevent water from collecting there.
- (n). Keep the grass in the compound cut short. Remove unwanted vegetation. Adult mosquitoes accumulate in shady areas.
- (o). If possible cut back secondary jungle from 50 yards or more away from house.
- (p). Make sure that roof gutters are kept clear of dead leaves etc. so that, water does not accumulate. Inspect them **ONCE A WEEK**.
- (q). If the area where you live is a high risk area for Dengue Haemorrhagic Fever, Council Staff may routinely treat domestic storage water containers with Abate Larvicide.

If a container has been treated with abate **DO NOT** wash it out or change the water every week. Abate is long lasting if it is allowed to stay in the bottom of the containers, and will continue kill Aedes larvae for several months.

- (r). If anyone in your family suffers from the following symptoms report at once to a doctor.

- ◆ High temperature
- ◆ Headache
- ◆ Muscle aches
- ◆ Pain in the back or joints
- ◆ Rash





11. Why it is necessary to carry out Mass Fogging Operation?

Fogging operation is estimated to last for 2 weeks. The purpose is to eliminate the Adult Aedes Mosquitoes (and other species) abundant in the high risk areas for the outbreak of Dengue Fever.

The chemicals that are going to be used in fogging operation must be the safest available in the market and there would be no side-effect caused by the fog produced. Since the operation is meant for outdoor fogging it is wise to open all windows and switch-off all air-conditioners so that the fog can penetrate into the house to kill mosquitoes hiding inside. The fog does not leave behind any stain nor odour. It is important to note here that nobody should stay inside the house while fogging operation is carried out.

What you can do to make the Fogging Operation a success.

Notices should be issued to the occupants 1 day before fogging. Informing :

- ◆ Date and time of fogging
- ◆ To open all windows
- ◆ To switch-off air-conditioners
- ◆ To put out naked fires
- ◆ To cover food
- ◆ To go outside the house while fogging is on
- ◆ To keep all windows open at least 10 minutes after fogging is done to remove the 'trapped' fog inside the house.

MODIFIED MOSQUITOES COULD BE "FLYING HYPODEMICS"

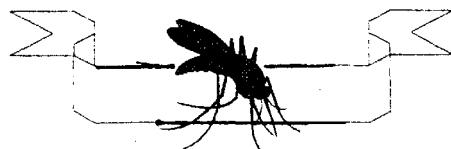
A new breed of mosquitoes could be designed to act as a "flying hypodermic syringe" to prevent malaria, the disease they normally spread, according to the London daily "The Times". The genetically engineered mosquito would transfer a protein through its saliva to act as a vaccine, immunising its victim against the disease which claims more than two million lives a year.

A patent on the idea has been granted to Professor Bob Sinden of Imperial College, London, and Professor Julian Crampton of Liverpool University. The scheme could be used to immune people and animals against a wide range of diseases and biting insect, not only mosquitoes, could be carrying the vaccine. "We are extremely excited by the research," said Professor Sinden. "Its eminently logical and we are confident we can make it work."

This technique described in the patent application involves modifying the insect's salivary gland by introducing a foreign gene. When blood sucking insect bites, their salivary glands produce chemicals that encourage their victim's blood flow. The action is under control of a gene that is switched on by a control region, a section of DNA lying near the gene. "We seal this control region and attach a gene that produces an antigen known to stimulate the body parasite," Professor Sinden said.

The modified gene can be put back into the insect using a variety of proven techniques. The result - an insect which continues to top-up the immune system of those it bites.

Source: Health Update, Health Digest, Nov/Dec 1996



APAKAH PENYAKIT DENGGI

- a) Penyakit Denggi adalah sejenis penyakit yang disebarluaskan oleh sejenis kuman yang dipanggil virus Denggi.
- b) Virus ini tersangat halus dan tidak boleh dilihat dengan mata kasar kita.
- c) Orang yang sihat boleh mengidap penyakit ini melalui gigitan nyamuk Aedes yang mengandungi virus Denggi.
- d) Penyakit ini seringkali menyerang kanak-kanak dibawah umur 15 tahun, tetapi orang-orang dewasa juga kini di serang.
- e) Penyakit ini di anggap paling berbahaya sekali di masa ini kerana hingga sekarang belum lagi ubat untuk merawatnya. Ia boleh membawa mati. Oleh itu cara yang paling berkesan sekali untuk menjauhkan penyakit ini ialah dengan mengawal pembiakan nyamuk Aedes yang menjadi pembawa penyakit ini.

SENARAI LAKUKAN DAN JANGAN LAKUKAN APABILA MELAKUKAN SEMBURAN ULV FOGGING



LAKUKAN

1. Menyembur berlawanan dengan arah tiupan angin.
2. Memandu dengan kelajuan yang betul (6-8km/j)
3. Memeriksa meter saluran racun serangga dari masa ke semasa terutama sekali semasa $\frac{1}{2}$ jam pertama mesin beroperasi.
4. Menyembur keluar dari jalan mati bukan sebaliknya.
5. Basuh tangan selepas kerja-kerja pembaikan atau selepas pengubahsuaian sebelum menyentuh makanan dan merokok.
6. Memeriksa paras minyak pelincir ULV setiap kali sebelum operasi di mulakan. (untuk alat ULV bermotor)
7. Memeriksa kenderaan dan mesin ULV dalam keadaan baik sebelum menggunakan.
8. Menggunakan lampu lip-lap (blinking) sebagai amaran kepada pengguna jalan raya yang lain.
9. Menggunakan alat/pakaian perlindungan diri semasa menjalankan operasi semburan bermula dari proses pencampuran bahan kimia sehingga tamat operasi.



JANGAN LAKUKAN

1. Jangan sembur berdekatan atau kearah restoran, gerai makanan, pasar malam di mana terdapat ramai orang dan penjualan makanan.
2. Jangan sembur semasa mengundurkan kenderaan.
3. Jangan mengacukan nozel semburan ke bawah atau sama paras dengan jalan (Nozel perlu di jongkitkan 45 darjah keatas).
4. Jangan sembur semasa kenderaan berhenti/tidak bergerak.
5. Jangan menyembur ke arah kenderan-kenderaan yang di letak di tepi-tepi jalan.
6. Jangan menyembur ke arah orang ramai (pejalan kaki)
7. Jangan menyembur semula di jalan yang sama.
8. Jangan menyembur semasa hujan lebat atau angin bertiup melebihi 13 km/j.

SENARAI DO AND DON'T UNTUK MENJALANKAN SEMBURAN KABUS DENGAN MESIN THERMAL



LAKUKAN

1. Periksa mesin setiap kali sebelum menjalankan operasi semburan.
2. Bawa 'tool kit' yang secukup dan bateri ganti ke lapangan.
3. Gunakan petrol grade regular.
4. Campurkan racun serangga mengikut sukatan yang betul di dalam bekas bersih sebelum mengisi kedalam tangki mesin.
Malathion (4%): 40ml malathion di campur dengan 1 liter diesel. RESLIN: 20 ml reslin di campur dengan 1 liter diesel.
5. Tapis campuran racun serangga.



6. Minta penghuni menutup makanan dan padam lampu.
7. Minta penghuni keluar dari rumah dan mengelurakan semua binatang peliharaan seperti kucing, burung, anjing dan sebagainya.
8. Mula semburan di tingkat atas dahulu dan dari bahagian belakang ke bahagian depan.
9. Tutup injap saluran racun serangga sebelum matikan enjin mesin.
10. Lepaskan tekanan dari tangki bantuan racun serangga dengan melonggarkan penutup tangki.
11. Keluarkan bantuan racun serangga dan petrol dari mesin jika mesin tersebut di simpan lama (tidak di gunakan).
12. Basuh tangan selepas membaiki atau menggunakan mesin sebelum menyentuh makanan atau merokok.
13. Penyelenggaraan mesin mengikut jadual (seminggu sekali)
14. Menggunakan alat/pakaian perlindungan diri semasa menjalankan operasi semburan bermula dari proses pencampuran bahan kimia sehingga tamat operasi.



JANGAN LAKUKAN

1. Jangan buat semburan berlebihan dari ruangan yang kecil kerana ia boleh menyebabkan kebakaran atau pun letupan.
2. Jangan mengisi petrol atau bahan racun serangga tanpa menggunakan corong.
3. Jangan mengisi/menambah petrol semasa mesin masih hidup dan panas.
4. Jangan menyembur di tengah jalan raya kerana ia boleh mengakibatkan kemalangan jalan raya.
5. Jangan membiarkan tempat-tempat nyamuk mungkin membiak atau berkeliaran di luar premis tidak di sembur



AKTA 154

AKTA PEMUSNAHAN SERANGGA PEMBAWA PENYAKIT, 1975

Larangan terhadap tindakan menimbulkan keadaan yang mungkin membiakan atau memberi perlindungan kepada serangga pembawa penyakit

13. (1) Tiada sesiapaun boleh melakukan atau menjalankan apa-apa tindakan yang boleh, atau yang mungkin, menimbulkan sesuatu keadaan yang boleh membiakan dan membezir perlindungan kepada serangga-serangga pembawa penyakit, atau membenarkan atau membiarkan keadaan itu terjadi atau berterusan.

(2). Seseorang yang melanggar seksyen-kecil (1) adalah bersalah atau suatu kesalahan di bawah Akta ini.

Di bawah peraturan dalam Akta Pemusnahan Serangga Pembawa Penyakit 1975, anda boleh didenda di mahkamah.

1. Bagi kesalahan pertama :

a. Didenda tidak lebih dari

RM1,000.00

b. Dipenjara tidak lebih dari 3 bulan atau

kedua-dua sekali

2. Bagi kesalahan kedua atau berikutnya.
Didenda tidak melebihi dari RM2,000.00
b. Diperjaraikan tidak lebih dari 1 tahun atau
kedua-dua sekali.
3. Anda juga akan didenda tidak melebihi
RM50.00 sehari sehingga punca pembiakan
dihapuskan.
4. Anda boleh dikompaun serta-merta tidak
melebihi RM100.00 tanpa amaran.

Sumber: Jabatan Kesihatan Negeri Selangor.

LANGKAH-LANGKAH KAWALAN PEMBIAKAN NYAMUK AEDES DI TAPAK PEMBINAAN (CONTROL MEASURES FOR BREEDING PLACES IN CONSTRUCTION SITE)

1. Menubuhkan pasukan untuk mencari dan memusnahkan tempat-tempat pembiakan jentik-jentik Aedes di tapak pembinaan.

To form a search and destroy team for eliminating breeding places of Aedes larvae at construction sites (both construction waste as well as domestic containers).

2. Membuat pemeriksaan ke atas tempat-tempat pembiakan jentik-jentik Aedes sekurang-kurangnya seminggu sekali.

Carry out larval survey at all potential breeding places at least once a week.

3. Menggunakan racun pembunuhan jentik-jentik (Abate 1% S.G. atau lain-lain kaedah sediada yang sesuai di semua tempat-tempat pembiakan nyamuk yang tidak dimusnahkan seperti dalam tangki/drum air.

Use larvicide which can destroy the larvae (Abate 1% S.G. or other methods which are available) and use it in areas which are not accessible such as tanks/water drums for drinking purposes.

4. Memusnahkan bekas-bekas yang tidak berguna yang boleh menakung air.

Destroy all unwanted containers which collect water.

5. Bagi lubang lif, ruang bawah tanah 'basement' atau tingkat-tingkat bangunan yang terdedah kepada hujan, Abate 500 E, garam atau kapur boleh di gunakan (mengikut kesesuaian).

Use Abate 500 E, salt or lime for basements or various floor levels of the building which are exposed to rain.

6. Memastikan semua salur-salur air, dan keratan lantai disemua tingkat dan sekeliling bangunan dapat disalirkan dengan baik.

Ensure there is a good gradient for water flow at all floor levels inside the buildings and all drainage, sewerage outside the buildings.

7. Memupuk kesedaran dikalangan kontraktor, kakitangan dan pekerja am mengenai kebersihan alam sekeliling.

Create awareness and motivate all workers on environmental sanitation.

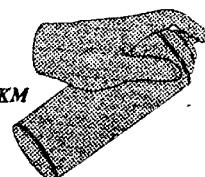


Sumber: Ibu Pejabat Kesihatan
Cawangan Penyakit Bawaan
Vektor Negeri Johor

CHRONOLOGY OF DENGUE OUTBREAK IN MALAYSIA

1960	Dengue epidemic occurred in Singapore; cases amongst older children and young adults.
1962	The first outbreak of dengue haemorrhagic fever in Penang. Age groups involved between 5-9 years. Mortality occurred between 6-7 years age group. 14 strains of dengue virus isolated from acute paired sera (Rudnick 1964)
1963	Dengue Haemorrhagic fever cases on the rise in Singapore.
1965	Epidemic in Penang - first time documented as Dengue Haemorrhagic Fever (Rudnick 1966)
1968	194 cases of Dengue Fever recorded from hospital admissions throughout Peninsular Malaysia
1973 July	Nation wide epidemic of dengue Became a major public health problem. First outbreak at Jinjang New Village, Selangor. 969 DHF cases with 54 deaths for whole of Malaysia. State of Selangor, Johor and Negeri Sembilan affected. DHF Case Fatality Rate 5.6% Total cases (DF + DHF) = 1,487
1974	Widespread epidemic affected states of Johor, Melaka and Selangor. <i>Aedes aegypti</i> incriminated as vector. 1,482 DHF cases with 104 deaths. Total cases (DF + DHF) = 2,200.
1975	Plan of action put into immediate effect Epidemic spreads to states of Perak and Pahang, Selangor and Federal Territory with highest number of cases. 52 localities termed as "Epidemic areas" 430 DHF cases with 41 deaths. Total cases (DF + DHF) = 830 Case Fatality Rate 9.5% Destruction of Diseases Bearing Insects Act 1974 introduced.
1976	Dengue established throughout Peninsular Malaysia.
1982	National outbreak of Dengue 860 DHF cases with 35 deaths. Total cases (DF + DHF) = 306.
1994	see table (page 5,6,8 and 9)
1995	see table (page 5,6,8 and 9)

Source: CPBV;KKM



HEALTHCARE FOCUS

It happens, whether from insects, or animals. The trick is to avoid situations that can put you PCOs at risk. And if it occurs even after the necessary precautions, you need to know how to handle bites and stings.

BITES AND STINGS

PCOs' are potential bite and sting victims for many creatures. These include bees, wasps, mosquitoes, fleas, ticks, ants, dogs, snake, bedbugs, etc. The list can be dauntingly extensive. The seriousness of the condition depends on many factors, including the species of the creature that bites, the extent of the bite and the victim's reaction to it. Therefore, this article will focus on three important ones



BEES AND WASPS



The sting of such insects can be dangerous. Many people are allergic to the venom of bees and wasps, and even a single sting can be catastrophic. The possibility of shock is always present, especially if the person suffers multiple stings.

Those who're stung by bees and wasps, suffer severe pain. The area swells, an the centre is blanched while the surrounding skin is red and warm. Often, a black sting can be seen embedded in the centre of the area, especially if it's a bee sting.

If there is only a single sting, and the person doesn't feel ill, the sting is embedded in the wound, remove it with a pair of tweezers. The alternative is to scrape it away with a sterilised needle. Do not squeeze the wound as this can push the sting deeper. Once the sting is removed, clean the wound gently with water and avoid rubbing the skin.

It would be good if you can identify whether it's a bee sting or wasp sting. If you are not sure, you can apply an antihistamine cream to the wound. To reduce swelling, apply a cold compress to the area.

If you are sure that it is a bee sting, you can apply a weak alkali such as the paste of baking soda or dilute ammonia to neutralise the venom of the sting (the sting of a bee has an acidic venom). If it's a wasp sting (which has an alkali venom), you can apply a weak acid such as a vinegar or lemon juice on the wound.

If the person happens to be stung in the mouth (however it happened), the person should suck on ice to reduce swelling. Get help immediately at a clinic or hospital because swelling from the sting can result in obstruction to breathing. If the person shows signs of shock from the sting, again, get an ambulance and rush to the nearest hospital. Signs of shock include a cold



clammy exterior, hyperventilation (fast breathing), a fast pulse, drowsiness and loss of consciousness.



Mosquito, fleas, tick and other insects

The actual bites from the above insects are usually more nuisance than anything else. Of course, with mosquito bites, there is a possibility of diseases such as dengue fever or malaria. So PCOs' do protect yourself from mosquito bites.

However, the bites from other insects usually cause only irritating symptoms - small bumps on the skin, minor pain and itch.

In general, anti-itch creams, antihistamines and catamine lotions are used to alleviate the irritating symptoms from bites of the above. Of course, prevention is better than cure, and the use of insect repellents and other similar measures will make life that much better.



DOG BITE

Dog bites can be serious, especially if the dog has rabies. In general, the seriousness of any dog bite depends on the extent and depth of the wound/wounds. A dog bite can cause severe bleeding, especially if a blood vessel is torn. The wound can become infected, and the person may also be at risk of tetanus.

In general, with a dog bite, the wound should be washed with a soap and running water. Apply an antiseptic lotion and cover the wound with a clean and dry dressing.

A visit to the doctor is necessary if bleeding is severe, the wound is gaping, infection has set in. If you suspect the dog has rabies, or if you cannot remember when you were last immunised against tetanus.



SNAKE BITE

There are many species of snakes, some of which are poisonous. The most important thing to remember about a snake bite is to take note of what type of snake it is. Even if you do not know what snake it is, memorise details, such as colour, size and any other distinguishing feature.

It is no longer recommended that you suck the venom from a snake bite. Or apply a tourniquet (unless you have adequate training). The thing to do now is to move the victim as little as possible, especially the affected limb. Wash the wound with soap and water to remove excess venom and get the person to a hospital immediately.



Source: SUN Healthtrack, Sat Dec 14, 1996.





Dear members,

Since the formation of our association in 1995, there has been a tremendous increase in numbers of members. There are now over 240 PCOs' registered in the country. It is PCAM's hope that more of the well established and newly formed companies to become members. Those that are members have enjoyed and benefited from various activities that have been conducted by the association. More activities are planned for this year and the future. The list of PCAM members as up to March 1997 are as follows:

ASSOCIATE MEMBERS

Agricultural Chemicals (M) Sdn. Bhd.
AgroEvo Environmental Health (M) Sdn. Bhd.
Ancom (M) Bhd.
Bayer (M) Sdn. Bhd.
CCM Bioscience Bhd.
DowElanco (M) Sdn. Bhd.
Hiphil Sdn. Bhd.
Moon Trading Company.
Syarikat Perniagaan Foggers.
Sykt Perniagaan M.S. Sdn. Bhd.
Tiram Crop Protection Sdn. Bhd.
Velsicol Chemical Corporation.
Wesco Agencies (M) Sdn. Bhd.

ACTIVE MEMBERS

Assunta Pest Control & Fumigation
Active Pest Control
Allied PHS (M) Sdn. Bhd.
Biochem Pest & Weed Control.
Bugsoff (M) Sdn. Bhd.
Bumipest Sdn. Bhd.
City Pest Specialist Resources.
CWS Hygiene Sdn. Bhd.
Dwiprofessional (M) Sdn. Bhd.
D-Zach Supplies & Services.
Expertell (M) Sdn. Bhd.
Excel Pest Control Services
Flick Pest & Weed Control Sdn. Bhd.
Formulakil
Fumax Pest Control Co.

Fumipest
Generasi Adil Sdn. Bhd.
Global Pest Control Sdn. Bhd.
Hiretokil Pest Control Service Sdn Bhd.
Indravaany Pest Control.
Ikari (M) Sdn. Bhd.
Johnwilliam Pest Control.
KK Pest Control Enterprise.
Kamal & Kamal Pest Control Sdn. Bhd.
Kamona Holdings (M) Sdn. Bhd.
Kilpest Sdn. Bhd.
Kil Pest Control Co.
Kilpest Company
Kilsure White Ant Company
Knockout Pest Control Co.
Lamda Entreprise
Lim White Ant & General Pest Exterminators
Maimonide (M) Sdn. Bhd
Mas Merah Engineering & Trading
Mega Q Sdn Bhd
Malaysian Pest Control Sdn. Bhd.
Metro Pest Control Services.
Nazra Sdn. Bhd.
Nirwana Enterprise
NS Pest Control Sdn. Bhd.
Ocean Pest Control (M) Sdn. Bhd.
Okin Pest Management Services.
Pest pecker Pest Control Services.
Pestcare Sdn Bhd.
Pestguard
Pest Dynamic (M) Sdn. Bhd.
Pestokill Environmental Services Sdn. Bhd.
Pest Kill Enterprise.
Pest Management.
PHS Pest & Hygiene Services.
PPT Pest Control.
Pronser Co.
Pulau Pinang White Ant Services.
QS Builder.
Rentokil (M) Sdn. Bhd.
Ridpest Sdn. Bhd.
RMR Enterprise
Safety Pest Control.
Sarawak Pest Control.
Scientific Pest Management (M) Sdn. Bhd.
Selayang Pest Control Sdn. Bhd.
Sinar Buminong Sdn. Bhd.
Soil Treatment Specialist Sdn. Bhd.
SP Pest Control & General Services.



THE PEST CONTROL
ASSOCIATION OF MALAYSIA



Stopest (M) Sdn. Bhd.
 Sumur Cahaya Sdn. Bhd.
 Suria Pest Control And Environmental Services.
 Syarikat City Pest Control.
 Syarikat General Pest Control.
 Syarilat Kil-ant Pest Control.
 Syarikat Killsant White Ants.
 Syarikat Selangor Pest Control.
 Terminex Pest Control Sdn. Bhd.
 Trans-Technic Pest Control Services.
 Trak Pest Eradicator.
 Universal White Ant Destroying Co.
 United Fumigation Sdn. Bhd.
 United Pest Services.
 Wira Pest Control Sdn. Bhd.
 Wood Pecker (M) Sdn. Bhd.
 Zulipest Sdn. Bhd.



How about it! In our last issue we published an article about a Chinese Professor eating ants to stay young and healthy. What a surprise, a local has been eating white ants (termite queens) for the same reason. So PCOs' if you want extra Ringgit for your work, why don't you sell you termite queens instead of terminating it!!

FROM

THE



NEWS

Worker eats termites to beat asthma

BAHAU: An odd-job worker turned into a termite eater after he dreamt of a man advising him that the insect could cure his asthma.

For the past seven years, 46-year-old Yong Fook Chai from Mahsan, 7km from here, has been preying on termite nests.

"One night, I dreamt of an old man wearing a turban and clad in white advising me to consume white ants, especially the queen ant, for my illness," he said yesterday.

"The next day, I followed a path in an oil-palm estate which the old man described in my dream and found over 50 white-ant nests," he said.

He claimed he recovered from the illness and became more active after eating the ants for three months.

Yong said he had sought treatment from a medium after prolonged asthma attacks affected his livelihood.

He also claimed that the Queen ants also enhanced the sexual prowess for both men and women, increased blood circulation in the body, cured rheumatism and were good for those with kidney problems.

HONORARY MEMBERS

Prof. Yap Han Heng (USM).
 Mohd. Azmi Ab. Rahim (Jelirapest Consultancy & Training Services)
 Ass. Prof. Dr. Rohani Ibrahim (UPM)
 Dr. Nathan Ganapathy (UPM)

Prepared by MAAR/JL/97



HEALTH FOOD . . . Yong putting a queen termite into his mouth as medication for his asthma

Queen ants should be swallowed alive and they may be preserved in bottles for 100 days," he said.

Yong sells some of the queen ants he catches to local residents for RM15 each. "Most of them are reluctant to eat the insect alive and preserve them in wine before consuming them," he said.

Electronic Devices - IPM Boon or Bust *by Bob Costello, Entomologist, Abbotsford.*

Some months ago, there was a lively discussion on Entomo-1, an entomology oriented list of server group, on the value of certain electronic devices to IPM programs. Most of the discussion was related to "bug zappers", but devices which emitted sound waves allegedly repellent to insects were commented on.

Bug Zappers:

The consensus of opinion of entomologist from North America, Europe, and Australia was that the control potential of electrocuting devices is limited, and there are some negative aspect to their uses. Zappers are commonly used for outdoor mosquito control. Studies have shown that the lights used in these devices often attract mosquitoes into an area where they then find people more attractive than the zapper. As well as being ineffective in controlling mosquitoes, these devices were criticized for being indiscriminate in their destruction. Many neutral and some beneficial insects are destroyed in control programs directed at mosquitoes.

A successful outdoor use of an insect electrocuter was in reducing wasps around a house. A device placed beside a nest attracted and killed a significant number of wasps returning from foraging forays.

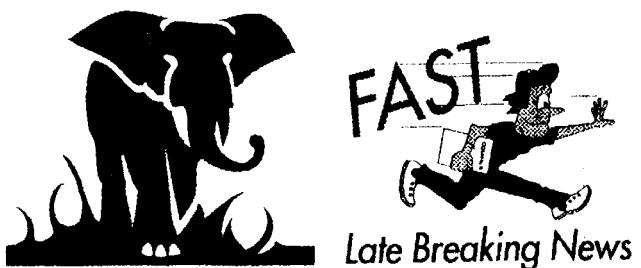
Researcherst reported that electrocuters used indoors are more effective. Zappers in barns, egg handling rooms, and restaurant kitchens reduced, but did not eliminate, house fly populations. There is a downside to this, however. The use of electrocuting traps indoors resulted in noticeable increase in air borne particles such as hair and bits of cuticle and wings, possible a problem to people with respiratory difficulties.

Sonic repellers:

Entomologist were unanimous intheir condemnation of sonic/ultrasonic devices claiming to repel insects such as mosquitoes, cockroaches, and fleas. There is no scientific data to support the concept of insect responding negatively to sound waves, either audible or ultrasonic. A number of objective evaluations have demonstrated a lack of effectiveness.

There is some scientific support for the use of ultrasound emmitters to repel rodents. However, studies indicated that rats and mice often "habituate" after a period of time and ignore or tolerate the sounds.

Source: Internet.



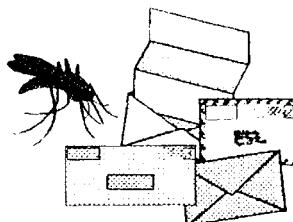
OH NO, NOT AGAIN!!....

Dear members,

Having difficulty in contacting PCAM's office lately? Those members who have been calling the office may find that only the answering machine attending to your call. PCAM apologies for the inconvenience. It is unfortunate that our last secretary Mr. Jeffry Lim has tendered his resignation last January (10th Jan 1997). Mr. Jeffry Lim was offered a new job by a company in Subang Jaya. PCAM thanked Mr. Jeffry Lim for his good services and the excellent job in running the secretariat, and wishes the best of luck with the new company..

PCAM is in the process of getting a new replacement to ensure that all PCAM activities can be managed without delays. At the moment, only a number of the Exco's take turns once in a while to attend to the office. I am very sorry for the inconvenience, but that's the best that PCAM could come up with for the time being. Until we find a new replacement, please bear with us.

President

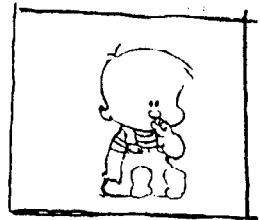


Alamak!..Backlogged, that's what we have now.

PCAM YO! IT'S FOR NOW AND THE FUTURE

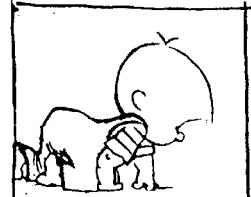
PEST CONTROL ASSOCIATION OF MALAYSIA OR PCAM FOR SHORT, THAT IS
WHAT I AM TO BE

I WAS FIRST THOUGHT OF SOMEWHERE IN YEAR 1993 , BUT TRULY
GIVEN THE RIGHT TO LIVE (REGISTERED) ON 3RD OF AUGUST 1994



URBAN PEST CONTROL IS 40 YEARS OLD IN MALAYSIA
BEFORE, WITHOUT ME, PCAM, THERE WAS NO UNITY AMONG PCOS'
NOW THAT I AM BORN, THERE IS GREATER OPPORTUNITY TO BE TOGETHER UNITED
LIKE THE PROVERB SAYS, DIVIDED WE FALL- UNITED WE STAND
I PCAM IS BORN TO SERVE PCOS', A DESTINY I SHALL HEED

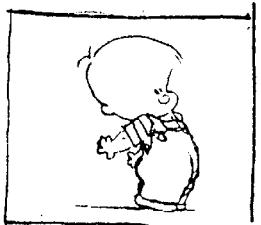
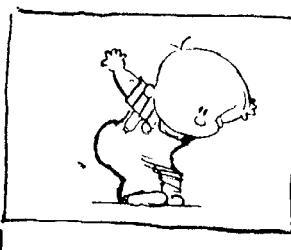
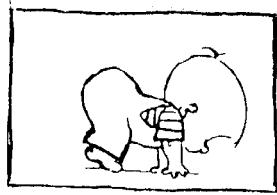
THERE ARE NOW AS I HEARD, ARE OVER 200 PCOS' IN THE COUNTRY
AND DON'T FORGET THE GROUP OF SUPPLIERS
BUT ONLY A HANDFUL HAVE REGISTERED AS MEMBERS
MY DUTY IS TO INVITE THOSE THAT ARE NOT
OR WHAT AM I BORN FOR?
IF NOT FOR UNITING PCO'S TOGETHER
I MAY ONLY BE SETAHUN JAGUNG (AS OLD AS THE BABY CORN)
BUT I AM DETERMINED TO DO WHAT I WAS BORN FOR
TO UNITE PCO'S TOGETHER



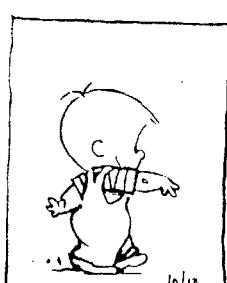
TO HELP ME DO THAT EXCO'S ARE SELECTED
AMONG MEMBERS THEY WERE DEMOCRATICALLY PICKED
TO ADMINISTER AND DESIGN ACTIVITIES FOR THE ASSOCIATION (ME PCAM THAT IS)
HARDWORKING THEY ARE TO ACCOMPLISH THEIR RESPONSIBILITIES
SO MUCH CAN THEY DO, YET SO MUCH MORE TO BE DONE
ONLY FULL SUPPORT FROM MEMBERS SHALL PCAM SUCCEED



YEAR 1995, INFANT I AM
CRAWLING, NOT DARING TO VENTURE FAR
1996, BARELY A CHILD, WALKING A STAGGERING DISTANCE, STILL NOT FAR , FOLLOWING THE CHINESE -
A 1000 MILES JOURNEY STARTS WITH THE FIRST STEP
BUT A SUPER CHILD IS NOT AFRAID
TO ADVENTUROUSLY TRAVEL INTO THE DARK UNKNOWN
THE TREACHEROUS LONG AND WINDING ROAD
WITH ACTIVITIES FROM SEMINARS, NEWSLETTERS AND TRAINING
I PCAM IS SET FORTH TO BE HEARD AND KNOWN WORLDWIDE
COME 1997, I, PCAM SHALL GO LIKE THE INTERNET
WITH OR WITHOUT FINANCIAL BOUNTIFUL
TO SERVE PCOS, I SHALL
THE PURPOSE WHY I'M BORN FOR



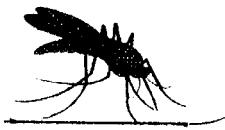
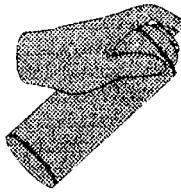
I NOW AM LOCATED AT PANDAN JAYA, KUALA LUMPUR
MY COMMUNICATION LINE IS 03-984-6288
AND 03-984-0388 IS MY FAX LINE
YOU ARE FREE TO VISIT ME
WHENEVER YOU ARE AROUND IN KL
AND SERVE PCOS' I SHALL



Dear Si FU



Dear Readers,



Happy New Year to all members and readers. As now we are already in 1997,

PCAM Pest-Info would like to thank those who had written in and asked all sorts of questions related to this particular industries. To those who are still having some unanswered questions please do not hesitate to write to us. Furthermore it is free of charge and all your questions will be answered on the first come first serve basis. Questions in Bahasa Malaysia and English are both welcomed. Please do include your name, company, address and telephone number with all submission. Contributions cannot be acknowledged or returned.

Sub-editor.



What are the factors determining how well the coverall (overall) an operator is wearing will protect the body?

Encik Mohd. Azhar
Muar, Johor

SF: The factors that determine the safety of one's overall are as follows:

1. The coverall (overall) fits loosely to the body. A loosely fit coverall provides a layer of air between it and the skin or inner clothing.
2. A coverall is most protective if it is worn over another layer of clothing, because a layer of clothing adds a protective layer of air as well has a layer of fabric.
3. Coveralls are most protective if they have tightly constructed seams and snug, overlapping closures that do not gap or become unfastened readily.



When should an operator wear chemical-resistant gloves? Why are gloves so important to a pesticide handler?

SF:

An operator should wear a chemical-resistant gloves any time you may get pesticides on your hands, except for some fumigant whose labeling may direct you not to wear gloves. The hand are by the far most likely route for a pesticide handler.



If I need to remove my gloves during the handling activity, what steps should I take to remove and put them back on?

Mr. Lai Wee Wee
Pulau Pinang

SF:

The precautions you can take before removing and putting the gloves back is first to wash the gloves thoroughly with clean water before taking them off. Before putting the gloves back, wash your hands cleanly and dry your hands before putting on the gloves again.

TIP OF THE MONTH

Teamwork :-

HOW TO DEAL WITH CONFLICT

Ask those who disagree to paraphrase one another's comments. This may help them learn if they really understand *one* another.

Work out compromise. Agree on the underlying source of conflict, then engage in give-and-take and finally agree on a solution.

Ask each member to list what the other side should do. Exchange lists, select a compromise all are willing to accept, and test the compromise to see if it matches with team goals.

Have the sides each write 10 questions for their opponents. This will allow them to signal their major concerns about the other's position. And the answers may lead to a compromise.

Convince team members they sometimes may have to admit they're wrong. Help them save face by convincing them that changing a position may well show strength.

Respect the experts on the team. Give their opinions more weight when the conflict involves their expertise, but don't rule out conflicting opinions.

Source: Making Teams Succeed at Work. Alexander Hamilton Institute, 70 Hilltop Road, Ramsey, NJ 07446

Face-to-Face Communication

If You Must Criticize Someone

Here are some suggestions for giving criticism in a way that motivates others to do a better job:

See yourself as a teacher or coach - as being helpful. Keep in mind that you're trying to help someone improve.

Show you care. Express your sincere concern about sharing ways the other person can boost his or her success.

Pick the right moment to offer criticism. Make sure the person hasn't just been shaken by some incident.

Avoid telling people they "should do such and such" or "should have done such and such." "Shoulds" make you appear right and pedantic.

Avoid giving the impressions that you're more concerned with seeing your recommendations put into practise than in helping the other person improve.

Show how the person will benefit from taking the actions you suggest.

Give specific suggestions. Being vague might only make the situation worse by creating anxiety and doubts.

Tip: Be sure you yourself can take criticism. If not, you may not be perceived as a credible source.



Penggunaan Racun Tikus Untuk Mengawal Tikus

Bberapa tahun lalu, PCO's tidak mempunyai banyak pilihan tentang racun tikus di mana hanya terdapat beberapa racun jenis *acute* (contoh arsenil, zink phosphide) yang mana semua memerlukan umpanan awal dan sangat berbiasa kepada bukan sasaran haiwan dan manusia). Dengan terdapatnya jenis racun antipenggumpalan (anticoagulant) darah membolehkan penggunaan yang lebih selamat, berkesan dan terdapat antidot (penawar).

Apabila terdapat kekebalan atau daya tahan terhadap jenis racun antipenggumpalan darah, kompaun generasi kedua telah dihasilkan. Kompaun-kompaun ini sangat berkesan terhadap populasi tikus yang telah memperolehi kekebalan atau daya tahan kepada racun generasi pertama. Ada jenis racun ini yang boleh mematikan tikus dengan sekali makan sahaja, dan ini menimbulkan satu strategi baru iaitu cara umpanan mengikut keperluan (*pulse baiting*).

1. Kekebalan Atau Dayatahan Kepada Racun (Resistance)

Ini adalah keadaan tikus-tikus yang telah memperolehi kekebalan atau daya tahan terhadap racun jenis antipenggumpal (anticoagulant) darah generasi pertama seperti warfarin. Kekebalan ini adalah disebabkan dari terlalu kerap dan terlalu lama (bertahun-tahun) penggunaan satu jenis racun yang sama. Ini menyebabkan populasi tikus (melalui proses pemilihan kimia dan 'survival') menjadi tahan terhadap racun tersebut. Selain dari itu penggunaan racun yang *tidak sistematis*, seperti umpanan yang jumlahnya terlalu sedikit di bawah kebiasaan yang mematikan tikus atau terdapat kurang minat tikus terhadap umpan yang menyebabkan hanya sedikit umpan dimakan dan tidak menyebabkan kematian, walaupun memakan berulang kali. Keadaan-keadaan ini boleh menyebabkan tikus-tikus memperolehi daya ketahanan terhadap racun yang berkenaan.

Pengetahuan mengenai racun tikus dan cara penggunaan yang betul untuk mengawal populasi tikus adalah penting bagi menentukan keberkesanannya dan juga untuk mengelakkan dari kesan sampingan seperti bahaya keracunan dan pembaziran.

2. Menghindar Atau Kesiluan Terhadap Umpan (Bait Shyness)

Seperti mana diketahui, tikus adalah makhluk yang cerdik, sangat sensitif terhadap keadaan, makanan dan sentiasa berwaspada terhadap semua musuh-musuhnya. Tabiat ini menyebabkan tikus *curiga* terhadap benda-benda baru yang terdapat di sekelilingnya termasuklah umpan yang di tempatkan di kawasan tersebut. Apa yang dilakukannya ialah, ia akan mencuba memakan sedikit sahaja umpan tersebut pada kali pertama. Sekiranya umpan tadi tidak membunuh, *tapi hanya memberi rasa tidak selesa atau symptom* ia tidak akan menyentuh atau memakan lagi umpan tadi. Kesan atau keadaan inilah yang dikatakan menghindar atau kesiluan terhadap umpan beracun.

3. Pengumpanan Kosong/Awal (Pre-baiting)

Pengumpanan awal adalah pengumpanan makanan tanpa racun untuk menarik perhatian dan minat tikus untuk memakan umpan beberapa hari sebelum umpan beracun

mengatasi tabiat menghindar atau kesiluan terhadap umpan yang mengandungi racun.

4. Stesyen Pengumpanan (Baiting Station)

Bekas racun yang diperbuat dari bahan-bahan tertentu (contoh tin, paip PVC, buluh dan lain-lain) bagi melindungi umpan dari dirosak oleh hujan, sinaran matahari (cahaya lampu) ataupun haiwan-haiwan lain.

5. Umpan Berlilin.: Contoh brodifacoum, bromadiolone, chlorophacinone, coumatetralyl, floucamafen, warfarin

Umpan yang khusus dirumus di kilang untuk terus digunakan (terusguna) hasil campuran racun, bahan umpan, lilin serta minyak. Bentuk yang biasa ada dalam pasaran ialah bentuk kiub, silinder dan bujur.

6. Racun Berformulasi Cecair. Contoh: chlorophacinone

Racun yang dirumus dalam bentuk cecair berminyak, air atau lain-lain bahan kimia. Racun jenis ini di gunakan sebagai umpan relai di mana sebelum di gunakan ia perlu dicampur dengan umpan seperti beras, kacang, jagung dan lain-lain dengan kadar tertentu bagi menarik perhatian dan minat tikus untuk makan umpan tanpa menjadikan keracunan umpan.

7. Racun Berformulasi Debu. Contoh: coumatetralyl, warfarin

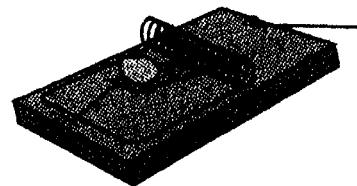
Racun ini dirumus dalam bentuk debu dan di gunakan dengan cara mendebu di lubang-lubang tikus atau dicampur dengan umpan.

Jadual Menunjukkan LD₅₀ Beberapa Jenis Racun Tikus

Jenis Racun	Jantan (mg/kg)	Betina (mg/kg)
1. Brodifacoum	0.27	0.27
2. Bromadiolone	1.125	1.125
3. Chlorophacinone	20.50	20.50
4. Coumatetralyl	16.00	16.00
5. Fluocamafen	1.00	1.00
6. Warfarin	375.00	325.00
7. Zinc phosphine	45.70	45.70

PERHATIAN

Sila ikuti sukatan dan cara-cara penggunaan racun tikus seperti yang disyorkan pada label kotak atau botol setiap racun yang digunakan.



Kelebihan dan Kelemahan Racun Jenis "Kronik"

Kelemahan:

- a. Boleh menimbulkan dayatahan atau kekebalan tikus terhadap racun jika digunakan berulang-kali dan berterusan.
- b. Tikus lambat mati. Biasanya tikus akan mati beberapa hari atau (minggu) selepas memakan umpan.
- c. Bangkai tikus jarang di temui kerana tikus biasa mati di tempat-tempat tersembunyi. Ini akan menimbulkan masalah bau busuk dan menarik lalat-lalat.
- d. Jumlah racun yang diperlukan untuk mematikan tikus adalah banyak. Jika digunakan oleh PCO yang kurang mahir boleh menyebabkan kurang umpan dibubuh ataupun berlaku pembaziran.
- e. Keberkesanannya yang perlahan boleh menyebabkan pembaziran dan boleh menimbulkan bahaya keracunan sekunder, kerana tikus yang gelojoh akan memakan umpan secara berlebihan.
- f. Adakalanya bukan sasaran (haiwan jenis lain) menjadi mangsa.

Kelebihan:

- a. Tidak akan atau kurang menyebabkan tikus menghindarkan atau kesiluan umpan.
- b. Mudah dan berkesan walaupun digunakan oleh mereka yang kurang berpengetahuan tentang racun tikus.
- c. Bahaya keracunan yang boleh membawa maut adalah kurang kerana sukatan atau kandungan bahan aktif di dalam umpan adalah rendah.
- d. Kos racun lebih murah.

Kelebihan dan Kelemahan Racun Jenis "Acute"

Kelemahan:

- a. Tidak ada antidot atau penawar jika temakan oleh manusia.
- b. Memerlukan kepekatan bahan aktif yang tinggi. Oleh itu kos bahan guna adalah tinggi. Selainnya akan menyebabkan kecenderungan tikus menghindar atau kesiluan pada umpan. Penggunaan berkesan perlu pemasangan umpan kosong (pre-baiting)

- d. Kepekatan bahan aktif yang tinggi boleh mengurangkan atau merubah citarasa dan menyebabkan umpan tidak digemari tikus.
- e. Tidak memilih mangsa, sangat bahaya kepada bukan sasaran.
- f. Penggunaan adalah terhad.

Kelebihan:

- a. Boleh membunuh dengan cepat.
- b. Bangkai tikus mudah dikumpulkan.
- c. Berkesan pada tikus yang kebal pada racun jenis antipenggupal (anti-coagulant)

(Sumber: Penggunaan Racun Untuk Mengawal Tikus, Risalah Pertanian BII. 67a, Jabatan pertanian, 1993)

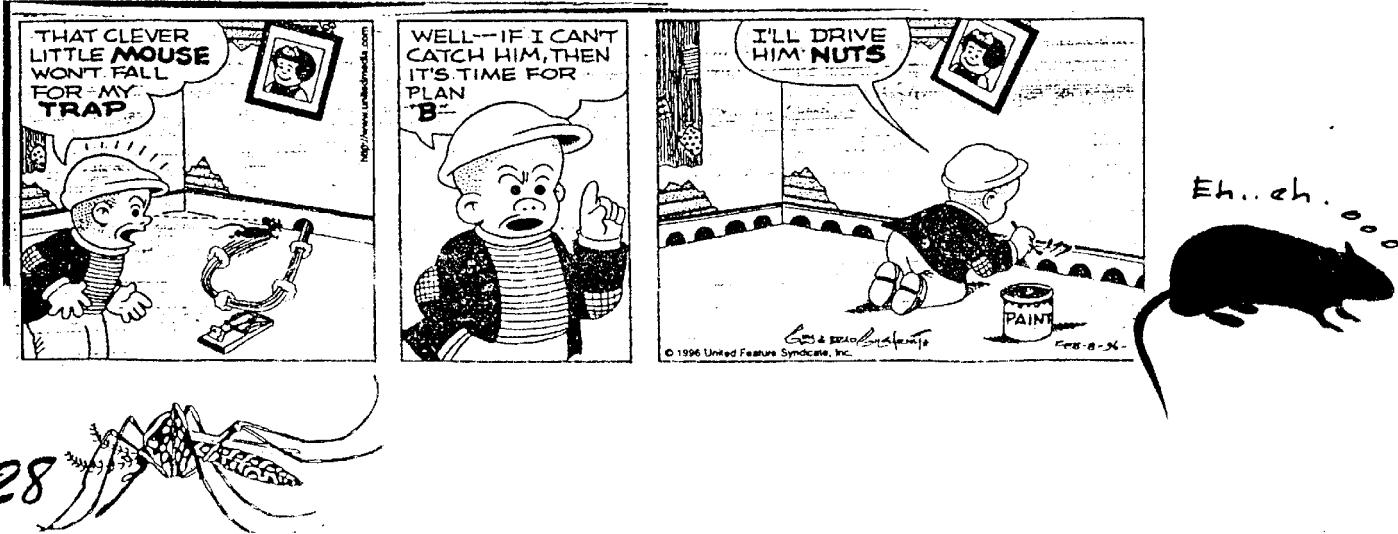


Methyl Bromide

Methyl bromide yields inorganic bromide in the body; the anion is slowly excreted in the urine (half-life in the body is about 12 days). The serum from persons having no exceptional exposure to bromide usually contains less than 1 mg bromide ion per 100 ml. The possible contributions of medicinal bromides to elevated blood content and urinary excretion must be considered, but if methyl bromide is the exclusive source, serum bromide exceeding 5 mg per 100 ml probably means some absorption, and 15 mg per 100 ml is consistent with symptoms of acute poisoning. Inorganic bromide is considerably less toxic than methyl bromide; serum concentrations in excess of 150 mg per 100 ml occur commonly in persons taking inorganic bromide medications.

In some European countries, blood bromide concentrations are monitored routinely in workers exposed to methyl bromide. Blood levels over 3 mg per 100 ml are considered a warning that personal protective measures must be improved. A bromide concentration over 5 mg per 100 ml requires that the worker be removed from the fumigant-contaminated environment until blood concentrations decline to less than 3 mg per 100 ml.

SLUGGO TURNS PCO'S



BUILDING TERMS (U.S) and Abbreviations -

Building terms of importance to pest management professionals.



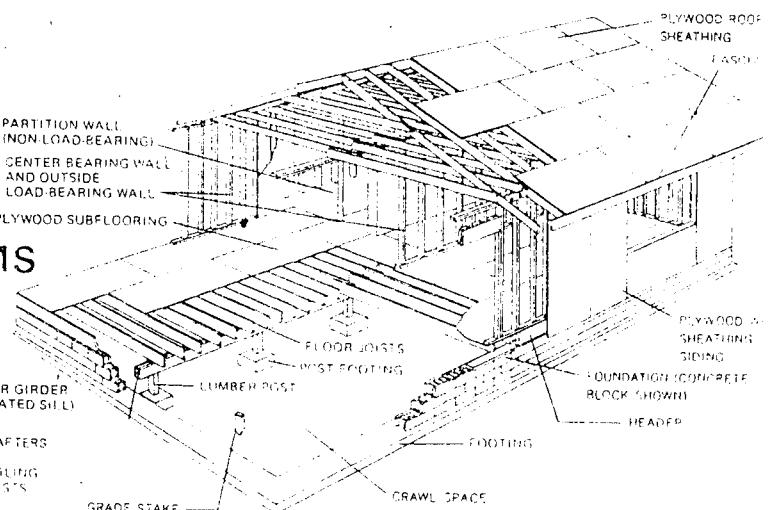
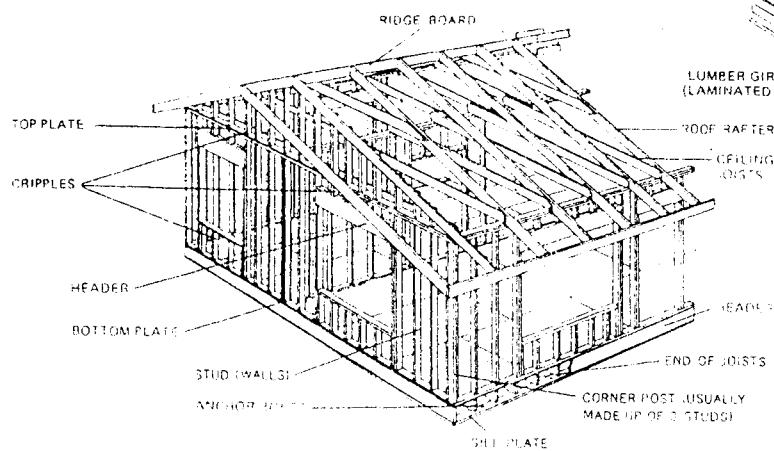
Ducts: in a house, usually round or rectangular metal pipes for distributing warm air from the heating plant to rooms, or air from a conditioning device or as cold air returns. May be embedded in or placed beneath concrete slabs. Ducts are also made of asbestos and composition material.

Facia: a flat board often used vertically to finish off the edge of a roof.

Footing: a masonry section, usually concrete, in a rectangular form wider than the bottom of the foundation wall or pier it supports.

STRUCTURAL AND HOUSING TERMS

DIAGRAMS IDENTIFYING STRUCTURAL MEMBERS



Foundation: the supporting portion of a structure below the first-floor construction, or below grade, down to and including the footings.

Girder: a large or principal beam of wood or steel used to support concentrated loads at isolated points along its length.

Grade stake: wood stake driven into ground to establish levels. These stakes are sometimes left in concrete floors and serve as passage for termites.

Grout: mortar made of such consistency (by adding water) that it will just flow into the joints and cavities of the masonry work and fill them solid.

Header: (i) a beam placed perpendicular to joists and to which joists are nailed in framing for basement, chimney, stairway, or other opening. (ii) a wood lintel.

Joist: one of a series of parallel beams, usually 2 inches in thickness, used to support floor and ceiling loads, and supported in turn by larger beams, girders, bearing walls, or foundation.

Lintel: a horizontal structural member that supports the load over an opening such as doors and windows.

Pier: a column of masonry or sometimes wood, usually rectangular in horizontal cross section, used to support other structural members. Post.

Plate: sill plate - a horizontal member anchored on top of a masonry wall. Sole or bottom plates - bottom horizontal member of a frame wall. Top plate - top horizontal member of a frame wall supporting ceiling joists, rafters, or other members.

Rafter: one of a series of structural members of a roof designed to support roof loads. The rafters of a flat roof are sometimes called roof joists.

Sheathing: the structural covering, usually wood boards or plywood, used over studs or rafters of a structure. Structural building board is normally used only as a wall sheathing.

Siding, bevel (lap siding): Wedge-shaped boards used as horizontal siding in a lapped pattern. This siding varies in butt thickness from $\frac{1}{2}$ to $\frac{3}{4}$ inch and in width up to 12 inches. Normal used over some type of sheathing.

Sill. (See Plate: sill plate). The lowest member of the frame of a structure, resting on the foundation and supporting the floor joists or the uprights of the wall. The member forming the lower side of an opening, as a door sill, window sill, etc.

Sleeper. Usually, a wood member embedded in concrete, as in floor, that serves support and to fasten subfloor or flooring.

Source: Pest Control Asia, Inaugural Issue; Truman's Scientific Guide to Pest Control Operations, Fourth Edition.

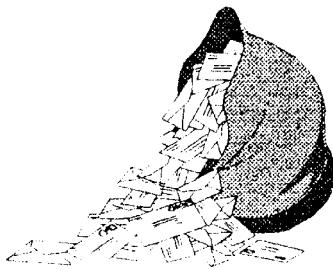


Dear Honourable Members/Readers,

Happy New Year! We are now in the first quarter of 1997. How fast time goes these days. This is our first issue for this year., Due to some technical constrain we were not able to publish this fourth issue earlier. We are very sorry for the delay. Since we should not start our year with negative thoughts I would like to wish all members a prosperous new year. This year would definitely be another stepping stones year for us to establish this particular industries to greater heights. As this issue under the 1995-1997 EXCO's (i.e. before the AGM and new office bearers) therefore, on behalf of the editorial board, I would like to say thank you to all the EXCO's who have given us the full support. To all PCAM's active members, please do not forget about the coming AGM. Grab this opportunity and chance to update yourself on the association. Furthermore, this is the time our new Executive Committees will be selected. This new group of people will make great changes to flourish in PCAM. To ensure that this happens is in your own hands!

Until then, see you around! But don't forget to forward your comments and suggestions to:

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Panda Jaya, 55100 Kuala Lumpur, MALAYSIA
Tel: 03-9846288; Fax: 03-9840388



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Thanks
Editor

***A good leader follow this principle – “Talk
about your own mistakes before criticizing the
other person”***

Dale Carnegie

