


**Nov/Dec 2011**

Editor note: Apologies for the long delay since the last newsletter, but the day job intervened!  
These items are from Nov/Dec 2011.

Wishing you all HAPPY HOLIDAYS 

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Genetic genocide: Genetically altered mosquito warriors could wipe out humanity's biggest killer

<http://www.gizmag.com/genetically-modified-mosquitoes-aegypti-mosquito/20668/>

<http://www.energybulletin.net/stories/2011-12-04/ioryx-and-crakei-comes-mosquito-town>

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Daily Mail

The company involved, **Oxitec**, is keen to begin trials next year, ... **Oxitec's** chief executive said there was a demand from British farmers for genetically ...



[Daily Mail](#)

[Millions of GM moths could be released to combat crop pests](#)

Telegraph.co.uk

**Oxitec**, the company behind the idea, hopes to begin trials next year but faces opposition from groups who say the untested technology could threaten ...



[Telegraph.co.uk](#)

### **DENGUE**

Dengue Vaccine ( subscription article)

<http://www.landesbioscience.com/journals/vaccines/article/17958/>

Thai minister of Science announces Dengue Vaccine

<http://www.theopenpress.com/index.php?a=press&id=125929>

Dengue subsides in FL, but threat is still there

<http://www.elbiruniblogspotcom.blogspot.com/2011/12/dengue-fever-cases-subside-in-florida.html>

Bioinsecticide against Dengue from Fundacion Oswaldo Cruz ( in Portuguese)

[http://www.jornaldobolsao.com.br/noticias/visualizar\\_noticia.php?noticia\\_id=31255](http://www.jornaldobolsao.com.br/noticias/visualizar_noticia.php?noticia_id=31255)

### **MALARIA**

New ways for the malaria parasite to enter the blood stream

<http://www.dailypioneer.com/sunday-edition/agenda/foreign/25064-mosquito-fight.html>

### **OTHER**

<http://ar.noticias.yahoo.com/constituyen-consejo-ministros-sistema-mesoamericano-salud-023822946.html>

Micro-nutrient supplementation may increase malaria risk

<http://www.scidev.net/en/health/news/micronutrient-supplementation-may-increase-malaria-risk-.html>

Fungal product to kill mosquitoes

<http://www.takepart.com/video/better-way-kill-mosquitos>

Vietnam and GM crops

<http://vietnamnews.vnanet.vn/Opinion/218871/health-test-crucial-for-gm-pilot-crop.html>

Agricultural monitoring for soci-economic effects

<http://www.nature.com/news/2011/110930/full/news.2011.566.html>

Mark Benedict blog from Malaria World on the *Wolbachia Aedes aegypti* project

<http://www.malariaworld.org/blog/they%E2%80%99re-%E2%80%93-and-running-dengue-resistant-aedes-aegypti>

## PUBLICATIONS

- Dengue: A.A. Hoffmann et al. Successful establishment of *Wolbachia* in *Aedes* populations to suppress dengue transmission. *Nature*. Vol. 476, Aug. 25, 2011, p. 454. doi: 10.1038/nature10356 Abstract available: [\[Go to\]](#)
- Dengue: T. Walker et al. The wMel *Wolbachia* strain blocks dengue and invades caged *Aedes aegypti* populations. *Nature*. Vol. 476, Aug. 25, 2011, p. 450. doi: 10.1038/nature10355 Abstract available: [\[Go to\]](#)

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## GM Mosquitoes

[HEALTH AND WELLBEING](#)

# Genetic genocide: Genetically altered mosquito warriors could wipe out humanity's biggest killer

By [Loz Blain](#)

02:04 November 30, 2011



*Aedes aegypti*, the #1 disease vector for dengue fever (Photo by Muhammad Mahdi Karim, published under the GNU free documentation license)

War, plague, famine, heart disease, cigarettes, road trauma: six very effective killers of human beings. But they're all amateurs when their records are compared to the number one mass murderer of all time. The humble mosquito, and the deadly diseases it carries, is estimated to have been responsible for as many as 46 billion deaths over the history of our species. That staggering number is even more frightening in context - it means that mosquitoes are alleged to have killed *more than half the humans that ever lived*.

So if any creature has earned the full force of the wrath of humanity, this nasty little bugger is it. Especially certain species like [Aedes aegypti mosquitoes](#) - the world's number one disease vector for deadly dengue fever, which infects between 50 and 100 million people a year around the world.

*A. aegypti* has evolved into the most curious and innocuous of human predators - it's the females that bite, and they more or less only feed on humans. Each bite exposes the victim to any blood-borne pathogens that the mosquito might have picked up along its way. Dengue and yellow fevers are among the most common - the mosquito contracts the virus by biting an infected victim, and then injects it along with its saliva when it stabs the next unlucky target's skin with its proboscis.

*A. aegypti* flies silently, so it's hard to know when you're in danger of being bitten, and it breeds and multiplies extremely effectively, needing only a teaspoon full of standing water for its larvae to hatch.

DDT-based insecticides have been effective against these little blighters, but evolution is quickly [building up their resistance](#) to this and other control measures. Fighting them with poison might be effective in the short term, but in the long run it only makes them stronger.

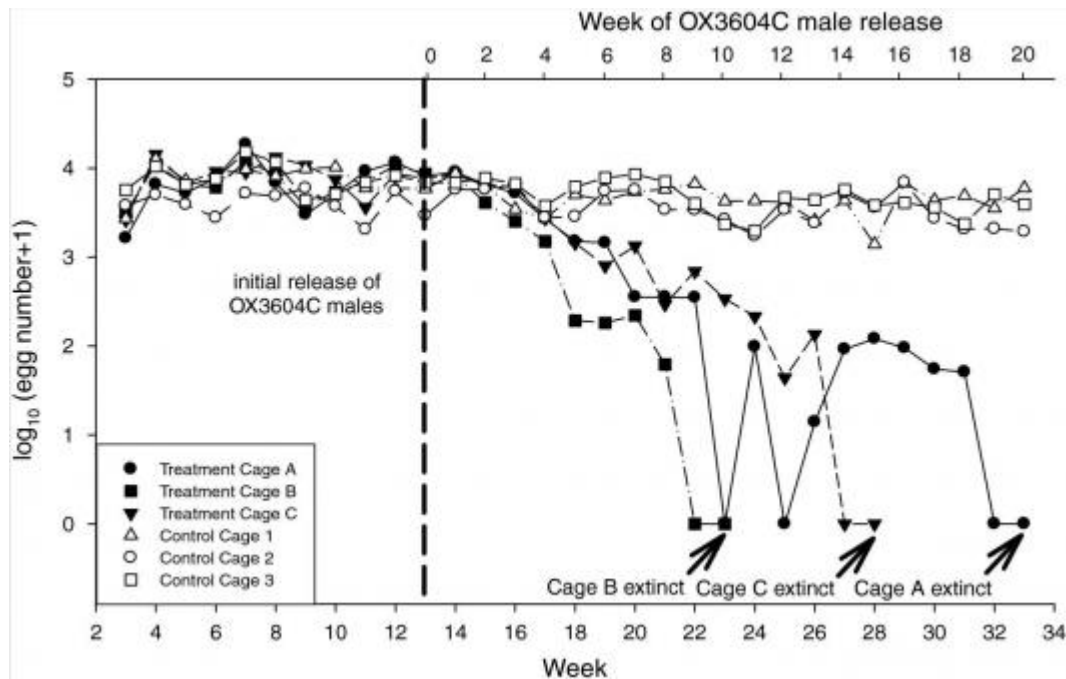
There is, however, a potential solution that can hijack the mosquito's breeding cycle to dramatically bring down the population and human risk factors. And it's undergoing testing in two very different ways right now.

## Genetic hacking - a brilliant solution

American scientist Anthony James, from UC Irvine, has made mosquito genetics the [focus](#) of his [career](#) - and his [latest invention](#) is a genetically modified mosquito designed to bring populations of *Aedes aegypti* down from within.

In short, the modified genes affect only the female mosquitoes, rendering them flightless. The larvae hatch on the water, and the females are unable to leave, rendering them harmless to humans and leaving them to die. The males are unaffected, so they mature normally, then mate with other females to pass the genetic modification on.

It's an extremely effective way of triggering a mosquito population crash - James and his colleagues have proven in cage-based testing in Mexico that a sufficient number of genetically hacked males can completely decimate a mosquito population within a few months. The table below shows this genetic genocide in action - within 23 and 33 weeks, the genetically modified males managed to completely destroy the otherwise stable mosquito population in James' test cages.



*A. aegypti* eggs make this a fantastically portable solution too - they survive for years at a time in dry conditions, then hatch in the presence of water. So you can more or less post an envelope full of millions of dry eggs to wherever in the world it's needed, and just add water. The crippled females will die where they hatch and you've got yourself a mutant force of GM males ready to start their work.

## Genetically modified mosquitoes to the wind

But while James' "netted laboratory" follows the traditionally cautious scientific approach, one of his partners has been decidedly more gung-ho about it.

Luke Alphey, whose company [Oxitec](#) was originally hired by James to design the flightless female genetic modification, is so confident that these genetic warriors work, and that there will be no environmental ill effects, that he has taken advantage of the lack of regulation in many areas to conduct [full scale field tests in the wild](#).

Oxitec's historic first release of GM mosquitoes in 2009 killed an estimated 80% of the *A. aegypti* population on the Grand Cayman island in the Caribbean - a geographically isolated area.

More mutant, autocidal mosquitoes have been released in Malaysia, and the technique is reportedly going into large scale production in Brazil.

James sees Oxitec's full-speed-ahead approach as a potential risk to the entire science of genetic modification. "That's the difficulty of working with corporations," he [told Scientific American](#), "I can't control corporate partners."

## An ethical and environmental quandary

So it seems it's happening. And whether it's for better or for worse depends entirely on your viewpoint.

It's difficult to know exactly what the result might be when you release something like this into the wild. Will there be knock-on effects on the food chain? What will the birds and fish that feed on mosquitoes eat instead? Will the demise of *A. aegypti* make way for an even nastier pest? Will their removal take away the means of pollination for certain plants? And will the genetic modification itself have unforeseen repercussions down the track?

Then there's the ethics of it - advanced use of this technology could foreseeably cause *A. aegypti* to become extinct. Some people brave the antarctic winter to save endangered whales, others will chain themselves to trees to defend endangered frogs... But who will stand up for the mosquito? And with a world human population ticking past 7 billion and counting, should we look at *A. aegypti* as an effective and necessary form of human population control?

On the other hand, humans have become dominant on this planet chiefly due to our ability to manipulate our environment - and with a scientific consensus forming that [the complete eradication of mosquitoes would have limited, if any, adverse environmental effects](#), this could be one of the most human-friendly modifications we could make to our world. And it would certainly be no worse for the environment than our habit of clear-felling forest areas.

As for "playing God" - that argument is moot. We're well and truly adept at that. We've been artificially selecting animals and plants for hundreds and thousands of years to suit our visual, olfactory and gastronomic preferences. Hardly a species that enters our lives in a significant way has not been altered over the generations to suit us better.

Why should we spare our most dangerous natural predator? Does history's greatest killer of human beings deserve a reprieve from the death penalty? What do you think?

*Published Dec 4 2011 by [Resource Insights](#), Archived Dec 4 2011*

## ***Oryx and Crake* comes to mosquito town** **by Kurt Cobb**

In Margaret Atwood's novel [Oryx and Crake](#) the brave new world of genetic engineering has devastated the human population. How this devastation comes about is explained in flashbacks that precede the opening scene. Naturally, the architect of this catastrophe thought what he was doing was a benefit.

What may seem like a benefit to society isn't always a benefit except to those who profit from it. So much has been written about the evils of genetically engineered food crops that it would be redundant to rehearse them all here. But what if the offending genetic technology were to be trained on a human problem that everyone believes ought to be tackled, namely mosquito-borne diseases?

The idea is to create wingless mosquitoes that can't get off the ground and so die practically in the place of their birth. [That idea is now a reality](#). And, where it has been tested, both in and out of the laboratory, it has been a smashing success, bringing mosquito populations down by 80 percent in very short order.

That means that diseases such as dengue fever, yellow fever and malaria which infect tens of millions of people each year would be considerably reduced.

But as with any alteration in an ecosystem, you can never do just one thing. What will the unintended consequences of such mass eradications be? The writer of the article cited above does acknowledge that mosquitoes are part of the food chain and their decline could affect birds and fish. He says that could have consequences for pollination since birds are part of this process for some plants. He also suggests such eradications might open a niche for an even nastier creature.

But then he goes on to say that "this could be one of the most human-friendly modifications we could make to our world. And it would certainly be no worse for the environment than our habit of clear-felling forest areas."

So, there you have it. Humans are creatures who routinely affect the surface of the Earth and the biosphere on a massive scale, so why not this modification which seems so small and so humane? I take my response from Dr. Phil of television fame: "So, how's that workin' out for you?"

This is the same logic that has been used to justify genetically engineered (GE) food crops, and then fiber crops such as cotton and trees, and finally crops that produce pharmaceuticals. Each introduction was always a step forward for human comfort and well-being. Now, we have weeds which resist the herbicide that only a decade ago was supposed to be the great savior of the cash crop farmer by reducing the chemical, labor and financial inputs of those who planted crops that resisted the same herbicide. That herbicide known as glyphosate may now be altering the microflora in the soil in a way that leads to so-called "sudden death" of GE crops.

We have butterflies that die from the pollen of corn. We have rising farmer suicide rates in India where GE cotton that was supposed to increase yields instead fell victim to disease leaving farmers destitute. And, we now have the specter of genetic contamination of food crops with genes from plants grown in the open to produce pharmaceuticals. Would you like a little insulin with your corn flakes?

I have no doubt that this new technique for controlling mosquito populations will spread. It seems as if it will be safer--for humans at least--than chemical sprays and more effective than bed nets. If this method of eradicating pests works well, where will we draw the line? Shall we rid ourselves of rats in cities? Seems like a good idea. How about loathsome raccoons who love our garbage and can carry rabies? Maybe you're feeling a little queasy about that one. Why not get rid of coyotes which destroy so much of our livestock each year? But wouldn't that upset the normal predator/prey balance for other species as well?

The effects of this type of mosquito eradication on local ecosystems may indeed be minor. But, there's really only one way to find out. Try it on a large scale in a lot of places. And, that's what scares me!

***Kurt Cobb** is the author of the peak-oil-themed thriller, [Prelude](#), and a columnist for the Paris-based science news site [Scitizen](#). His work has also been featured on *Energy Bulletin*, *The Oil Drum*, *321energy*, *Common Dreams*, *Le Monde Diplomatique*, *EV World*, and many other sites. He maintains a blog called [Resource Insights](#).*

## **GM insects**

### **Frankenmoth: Health fears over plans to release millions of GM insects designed to destroy pests**

By [SEAN POULTER, CONSUMER AFFAIRS EDITOR](#)  
Last updated at 12:22 AM on 15th December 2011

Millions of genetically modified insects designed to destroy food crop pests could be released into the countryside. The Government is considering plans by a British company for the 'open release' of a GM strain of the diamondback moth, which it has developed. Diamondback moths attack cabbages, broccoli, cauliflowers and similar crops.



The diamondback moth: Targets cabbages and other vegetables and might be released into the countryside to destroy food crop pests. With the GM strain a lethal gene is inserted into the male of the species so that when they mate with wild females, their offspring die almost immediately, causing the population to crash. That could lead to increasing crop yields and profits for farmers. The company involved, Oxitec, is keen to begin trials next year, but it faces opposition from groups who say the untested technology could threaten wildlife and human health.

**More...**

- [It's a bug's \(day to day\) life: When they're not preying, these mantises spend their downtime in the bath and frying flies](#)  
The idea that man is 'playing God' in this way is also controversial. Dr Helen Wallace, the director of GeneWatch UK, who has sat on government advisory bodies, said the release of GM 'Frankenmoths' is potentially disastrous. 'Mass releases of GM insects into the British countryside would be impossible to recall if anything went wrong,' she said. 'Changing one part of an ecosystem can have knock-on effects on others in ways that are poorly understood. This could include an increase in different types of pest. Wildlife that feeds on insects could be harmed if there are changes to their food supply.'

### 'READY FOR TESTING IN 2012'

Oxitec's chief executive said there was a demand from British farmers for genetically modified diamondback moths and that UK trials could start next year.

Hadyn Parry said using GM insects to kill the pests that prey on food crops is better for the environment than harsh chemical sprays.

'Normally if I go over a crop with a pesticide, I kill all the insects that chemical touches, whether they are the ones I want to kill or whether they are beneficial,' he said.

Mr Parry added that it had been decided to genetically modify the diamondback moth because it develops resistance to chemical pesticides very quickly.

'In terms of the technology, it is ready now,' he said. 'We could do a trial in 2012, subject to what the regulatory authorities want us to do.'

He said he expects there will be opposition to the technology in the UK and Europe, but that 'regulators are really keen on making sure that there is no harm to the environment or unforeseen consequences.'

'GM insects that bite animals or humans could cause allergies or transmit diseases and new diseases might evolve.'

The Oxitec team of scientists, based in Oxford, insist these modified insects are better for the environment than the harsh chemical sprays currently used to kill pests.

PUGH



*'What luck! Just in time for  
your mother's knitted jumpers'*

The firm, which is supported by grants from the taxpayer, is developing a number of GM insects that would be used in Britain and around the world to protect crops and combat disease in humans.

## Oxitec has contacted the Health and Safety Executive to ask what controls, if any, should be put in place around GM moth trials.

A scientific paper written for the HSE's Scientific Advisory Committee on Genetic Modification details how trials would work. There are a number of scenarios, ranging from open release into fields to a more controlled experiment using polytunnels with insect proof screens at each end.

Dr Wallace has accused Oxitec of trying to sidestep regulations designed to police GM technology.

But the company appears to have the support of the Department for Environment, Food and Rural Affairs, which has raised no objections to open field trials.

This raises questions about the role of Environment Secretary Caroline Spelman, who is a long-term supporter of GM technology.

The scientific paper points out that the proposals would effectively circumvent the policing regime – the Deliberate Release Regulations – set up to scrutinise the release of GM organisms.

It then admits that approving trials through the HSE 'raises difficult legal and policy issues'. Usually, GM trials have to be approved by Defra.



Releasing the moth may lead new diseases to evolve

Significantly, the paper makes clear that Defra has not objected to open field trials, providing there are guarantees for the safety of humans and the environment.

Oxitec says all the GM moths carry a lethal gene and would die within a few days of release. This is known as 'biological containment' and Oxitec argues that it is so successful there is no need for any physical barriers to stop the insects flying away. The paper states: 'For an "open" release to go ahead the extent of the biological containment would have to meet two legal tests.

'First, it should be sufficient to limit contact with humans and the environment. Second it should provide a high level of protection to humans and minimise the risk of harm to the environment.'

A Defra spokesman said that while its officials and advisers have discussed Oxitec's plans, there has not yet been a formal application for a trial. Consequently, the department has not reached a view on whether it should go ahead.

Read more: <http://www.dailymail.co.uk/news/article-2074319/Frankenmoth-Health-fears-plans-release-millions-GM-insects-designed-destroy-pests.html#ixzz1iqEq2hSX>

## Millions of GM moths could be released to combat crop pests

Millions of genetically modified moths could be released into the countryside to help kill off crop pests, under plans being considered by the Government.



Genetically modified moths could help increase farmers yields of vegetables such as cabbages by killing off pest species, scientists claim Photo: MARTIN POPE

7:30AM GMT 15 Dec 2011

 [11 Comments](#)

A British company has proposed releasing a GM strain of the diamondback moth, which it has developed, which would reduce the population of the vegetable-eating insects.

Males carrying a lethal gene would be released which would cause their offspring to die almost immediately. The subsequent fall in their numbers could help increase yields for farmers.

Oxitec, the company behind the idea, hopes to begin trials next year but faces opposition from groups who say the untested technology could threaten wildlife and human health.

Dr Helen Wallace, the director of GeneWatch UK, who has sat on government advisory bodies, told the [Daily Mail](#): "Mass releases of GM insects into the British countryside would be impossible to recall if anything went wrong.

"Changing one part of an ecosystem can have knock-on effects on others in ways that are poorly understood. This could include an increase in different types of pest. Wildlife that feeds on insects could be harmed if there are changes to their food supply."

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Hadyn Parry, Oxitec's chief executive, said there was demand from farmers for the technology and that using GM insects to kill the pests that prey on food crops is better for the environment than chemical sprays.

The firm, which is supported by grants from the taxpayer, is developing a number of GM insects that would be used in Britain and around the world to protect crops and combat disease in humans.

Oxitec has contacted the Health and Safety Executive to ask what controls, if any, should be put in place around GM moth trials.

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## Dengue

Ministry of Science Announces Successful Development of First Dengue Vaccine

Published on: December 20th, 2011 12:05am by: thaitourismupdate

(OPENPRESS) December 20, 2011 -- Biotech NSTDA, Chiang Mai University and Mahidol University together announced the successful development of a dengue vaccine, the first of this kind in the world. Following the achievement, they signed an authorization for Bionedd-Asia to develop a dengue vaccine in the near future.

On February 21st 2011, Dr. Weerachai Weeramethekul, the minister of Science and Technology, with Dr. Thaweesak Koanathakul, of the National Science and Technology Development Agency (NSTDA), the presidents of Chiang Mai and Mahidol universities, announced publicly this important breakthrough and the agreement to develop and produce a dengue vaccine to protect the people of the world.

The project to develop a dengue vaccine was initiated in 2000 by Assoc. Professor Dr. Nopporn Sitthisombat, and Dr. Poonsuk Keelapang of Chiang Mai University and the Network Technology of Biomedical Sciences Research Unit, Department of Genetic Engineering and Technology, and research teams of Mahidol University led by Assoc. Professor Dr. Suthee Yoksan . Together, they have successfully created and tested four serotypes of the dengue vaccine Chemeric Live - attenuated.

Dengue has been a major killer, and after more than 30 years of rigorous development of a dengue vaccine to combat the four strains to prevent being subjected to recurring infections Thus, this new vaccine will be an important medication to prevent epidemics from occurring.

The Tourism Authority of Thailand (TAT) was established on the 18th March 1960. TAT was the first organization in Thailand to be specifically responsible for the promotion of tourism.

TAT supplies information and data on tourist areas to the public, publicizes Thailand with the intention of encouraging both Thai and international tourists to travel in and around Thailand, conducts studies to set development plans for tourist destinations, and co-operates with and supports the production and development of personnel in the field of tourism.

Since the inception of the first local office of TAT in Chiang Mai in 1968, there are now 35 regional offices throughout Thailand. TAT has also established many overseas offices the first being in New

York, which was opened in 1965. During the past 30 years, TAT has since established 15 more offices in different parts of the world.

Tourism Authority of Thailand

1600 New Phetchaburi Road, Makkasan, Ratchathevi , Bangkok 10400, THAILAND

Tel: 662 250 5500 , TAT Call Center 1672 Fax: 662 253 7400

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Professional Free Press Release News Wire

LUNES 19 DE DICIEMBRE DE 2011

Dengue Fever Cases Subside in Florida, But Threat Remains: MedlinePlus



## Dengue Fever Cases Subside in Florida, But Threat Remains

Report finds no outbreak in Key West this year, but many residents may still be infected

URL of this page:[http://www.nlm.nih.gov/medlineplus/news/fullstory\\_119823.html](http://www.nlm.nih.gov/medlineplus/news/fullstory_119823.html)

(\*this news item will not be available after 03/15/2012)

Friday, December 16, 2011



Related MedlinePlus Page

- [Dengue](#)

FRIDAY, Dec. 16 (HealthDay News) -- While the alarming re-emergence in 2009 and 2010 of mosquito-borne dengue fever in the continental United States seems to have subsided, that's no reason to believe the potentially deadly infection won't be back, experts warn.

The outbreak of the sometimes-excruciating viral illness centered on southern Florida. Now, researchers have issued an update on the situation for one locale in particular, Key West.

"We know now that Key West is a high-risk area for dengue and we could have ongoing dengue outbreaks again," said the report's lead author, Carina Blackmore, from the Florida Department of Health. However, if people use air conditioners and screens and stay inside during hot, muggy days there is little chance dengue will become endemic, she said.

Dengue remains a leading cause of illness and death in tropical areas but was largely thought to be absent from the United States since the 1950s.

However, in 2009, 27 people living in Key West came down with illness via locally acquired infections, and then 66 more residents contracted the illness in 2010, the researchers report. The outbreak seems to have eased since then, with no cases reported in 2011.

That doesn't mean that dengue is eliminated from the population, however, because around 75 percent of people infected never develop symptoms. Blackmore and her colleagues estimate, therefore, that about 5 percent of people living in Key West neighborhoods where cases occurred could be infected.

Because Key West has a large population of the type of mosquitoes that transmit dengue, called the "house mosquito," Blackmore's team decided to investigate the size of the outbreak there. They identified a number of cases and found that people who got dengue were less likely to use air conditioning, and they often had birdbaths or other types of containers where the mosquitoes could breed.

Blackmore noted that dengue is not transmitted person to person, but from humans to mosquitoes and then back to humans again. However, trying to eradicate house mosquitoes has never been successful, she said, because of where they tend to propagate. "House mosquitoes are lazy mosquitoes -- they breed in [even] very small containers," she said.

The report appears in the January issue of *Emerging Infectious Diseases*, which is published by the U.S. Centers for Disease Control and Prevention (CDC).

Dr. Hal Margolis, chief of the CDC's dengue branch, said that most dengue that appears in the United States is still brought back by people who have traveled to areas in the world where the disease is endemic. "There are thousands of people who come back with dengue. That's really the biggest problem," he said.

There are also sporadic outbreaks along the Texas/Mexican border, Margolis said. In addition, dengue is endemic in some areas of the United States such as Puerto Rico, the U.S. Virgin Islands and Asian possessions such as Guam and American Samoa, he said.

The Key West outbreak was unusual in that it lasted for two seasons, Margolis said. "Frankly, we don't know if it is still there," he added. "How it got introduced, we don't know."

Dengue could still become endemic in Florida, Margolis said. "We won't know for several seasons. Only time will tell us; it's really hard to predict," he said.

The disease can cause a high fever and people can feel sicker than they have ever felt before, Margolis said. "The danger comes in those people who get severe dengue; that usually happens with a second or third infection," he said. "Twenty-five percent of people who have first infections may go on to have severe dengue."

In severe dengue, plasma leaks out of the blood vessels, ending up around the lungs and abdomen, and sufferers can develop shock, Margolis said. About 15 percent of people have these severe signs, he said. About 1 percent may die, he added.

The biggest hope for prevention lies with a vaccine, Margolis said.

"There is a lot of effort on dengue vaccines going on, but it's going to be another three or four years before a vaccine is approved," he said. There are vaccines currently in clinical trials, he added.

Trying to control the mosquitoes to curb infections has *not* proven to be all that effective, he said. People who have air

conditioning or screened windows may be at lower risk, since a closed house keeps the flying insects at bay.

Infectious disease expert Dr. Marc Siegel, an associate professor of medicine at New York University in New York City, agreed with the experts' warnings. "I wouldn't be surprised to see more cases," he said.

The problem is that the mosquitoes in Key West are now carrying the disease, which makes it more likely that there will be more outbreaks, Siegel said.

**SOURCES: Carina Blackmore, Ph.D., Florida Department of Health, Tallahassee; Hal Margolis, M.D., chief of the dengue branch, U.S. Centers for Disease Control and Prevention; Marc Siegel, M.D., associate professor, medicine, New York University, New York City; January 2012, *Emerging Infectious Diseases***

**HealthDay**

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[Dengue Fever Cases Subside in Florida, But Threat Remains: MedlinePlus](#)

PUBLICADO POR SALUD EQUITATIVA EN 11:03

## Brasil terá bioinseticida contra dengue em 2012

O país contará com um importante aliado para combater a dengue no próximo ano. Um bioinseticida desenvolvido pela Fundação Oswaldo Cruz (Fiocruz) e fabricado por uma indústria farmacêutica promete ser divisor de águas na luta contra o *Aedes aegypti*, mosquito transmissor da doença. O bioinseticida é resultado de quase dez anos de pesquisas coordenadas pela cientista Elizabeth Sanches, que trabalha na Farmanguinhos, unidade da Fiocruz responsável pela produção de medicamentos.

Criado a partir do *Bacillus thuringiensis* e do *Bacillus sphaericus*, ele será produzido na forma de comprimidos, para dissolução em caixas d'água, ou em apresentações maiores, para utilização em açudes e reservatórios. "No caso da dengue domiciliar, é recomendável a utilização do comprimido hidrossolúvel. O produto tem duas ações concomitantes: paralisa os músculos da boca e do intestino da larva e causa infecção generalizada nela", explicou Elizabeth, engenheira bioquímica e bióloga.

A pesquisadora garantiu que o bioinseticida não apresenta qualquer risco para o meio ambiente. "Nós fizemos todos os testes referentes a impacto ambiental e toxicologia da formulação em animais de sangue quente, inclusive. Temos a segurança dos produtos que desenvolvemos, justamente por serem aplicados em ambientes domiciliares. A Farmanguinhos concluiu o treinamento dos funcionários da empresa BR3, vencedora da licitação e que poderá iniciar a produção dentro de alguns meses, segundo Elizabeth.

"A empresa acabou de ser treinada e está bem adiantada na implantação do projeto. Eu penso que no meio do ano que vem nós já tenhamos produtos dessa parceria tecnológica". Além do produto contra a dengue, a Farmanguinhos licenciou mais dois bioinseticidas: contra a malária e contra a elefantíase. A pesquisadora disse que produtos com ações semelhantes já são utilizados em outros países, como a China, mas não podem ser simplesmente importados para aplicação no Brasil: "O produto tem que ser desenvolvido com especificidade para o local de aplicação. Justamente para podermos ajustar a formulação para aquele ambiente".

Cidade: Brasil

Autor: Agência Brasil

Data: 19/12/2011

## Mosquito fight

SATURDAY, 03 DECEMBER 2011 14:56  
VENKATA VEMURI

**The war on the good old mosquito has reached a new level after several years, thanks to joint efforts of researchers at the University of Leicester and research institutes in France, Scotland and Switzerland. They can tell us now how exactly to better fight malaria that infects hundreds of millions of people in the world every year. And the research is being heralded as path-breaking by science journals all over Europe.**

The disease is caused by the malaria parasite, *Plasmodium*, that is injected into the human host through the bite of the female *Anopheles* mosquito. Now researchers have discovered new ways in which the malarial parasite survives in the bloodstream of its victims.

What has been perplexing for scientists and doctors till now is how the parasite manages to survive anti-malarial drugs. The new research says a crucial element that is required by malaria parasites to survive in the human blood stream is a group of enzymes called protein kinases. If we stop these proteins kinases from working then we

kill the malaria parasites. A protein kinase is an enzyme that modifies other proteins. The kinases are used to transmit signals and control complex processes in cells. The human genome apparently has around 500 protein kinase genes — which roughly constitute two per cent of all human genes. The researchers are now looking for drugs that exactly do that — stop the protein kinases from working. If they find these drugs then we will have a new way of killing the malaria parasite.

The research — published in the prestigious scientific journal, *Nature Communications* — is the result of collaboration between medical scientists at the University of Leicester in the UK and a team from the French Institute National de la Santé et de la Recherche Médicale (Inserm) working at the Wellcome Trust Centre for Molecular Parasitology in Glasgow, Scotland and the Ecole Polytechnique Fédérale de Lausanne (EPFL, Switzerland), now relocating to Monash University in Melbourne, Australia.

Professor Andrew Tobin of the University of Leicester's Department of Cell Physiology and Pharmacology and Professor Christian Doerig, now at Monash University, say: "The parasite is very clever at adapting to drug treatments and in so doing becoming resistant to drugs. In fact, there is already evidence that the parasite is developing resistance to the most recent front line treatment for malaria. To avoid the catastrophic affects of widespread resistance to anti-malarial treatments we need a continued pipeline of new anti-malaria drugs. Our discovery provides one avenue towards populating such a pipeline."

Fresh research is now expected to look at fighting another deadly disease, Dengue fever, which is transmitted by the bite of an Aedes mosquito infected with any one of the four dengue viruses.

## Other

# Constituyen el Consejo de Ministros del Sistema Mesoamericano de Salud



En la imagen, la ministra de Salud Pública y Asistencia Social de El Salvador, María ...

San Salvador, 2 dic (EFE).- El Consejo de Ministros del Sistema Mesoamericano de Salud Pública (SMSP) se constituyó hoy en El Salvador como órgano de dirección de dicho mecanismo que incluye a los países del Sistema de la Integración Centroamericana (SICA), México y Colombia.

El nuevo órgano se instaló después de una reunión del Consejo de Ministros de Salud de Centroamérica (Comisca), que durante dos días se celebró en un hotel de la capital salvadoreña para revisar los avances de la gestión de El Salvador en su Presidencia pro t mpore.

Una fuente del Comisca indic  a Efe que el mecanismo para rotar la Presidencia del Consejo de Ministros del SMSP se definir  posteriormente.

Agreg  que el Consejo de Ministros del SMSP es "el  rgano de decisi n formal que impulsar  las acciones al interior de los pa ses y potenciar  la participaci n de nuevos cooperantes en el Sistema".

El SMSP fue creado durante la X Cumbre del Mecanismo de Diálogo y Concertación de Tuxtla que se celebró en la ciudad mexicana de Villahermosa el 28 de junio de 2008 y el Comisca aprobó su reglamento el 23 y 24 de junio pasado en Guatemala para que el Consejo de Ministros se constituyera hoy en El Salvador.

Según la fuente, el SMSP tiene como áreas prioritarias la vacunación, la nutrición, la salud materna y las enfermedades transmitidas por vectores, así como la vigilancia epidemiológica y el fortalecimiento de los recursos humanos.

Además, el SMSP busca, entre otras metas para el año 2015, reducir la mortalidad materna en un 75 %, lograr cobertura de planificación familiar en un 80 % de las mujeres y reducir la mortalidad neonatal en un 30 % en los países de la región mesoamericana.

Asimismo, busca reducir la prevalencia del retardo en el crecimiento de los niños del 30,5 % al 25,5 %, reducir la prevalencia de anemia en menores de cinco años del 32,1 % al 23,1 %, reducir la incidencia de dengue en un 50 % y erradicar la transmisión de la malaria.

La instalación del Consejo de Ministros del SMSP fue presidida por la ministra de Salud de El Salvador, María Isabel Rodríguez, en un acto en el que también participaron su homólogo de Honduras, Arturo Bendaña, y otros representantes de los países del SICA, México y Colombia.

Rodríguez le entregó a Bendaña la presidencia pro t mpore del Comisca, que le corresponde a Honduras en el primer semestre del pr ximo a o como parte de la rotaci n de las gestiones del SICA y sus  rganos ministeriales.

En la imagen, la ministra de Salud P blica y Asistencia Social de El Salvador, Mar a Isabel Rodr guez.

EFE/Archivo

## Micronutrient supplementation 'may increase malaria risk'

Mercy Adhiambo

15 December 2011 | EN



Iron supplements could put children at risk from malaria

Thirteen of Clubs/ Flickr

[NAIROBI] A WHO recommendation to supply all iron-deficient children with micronutrient supplements has been called into question by a study that has found this may increase the risk of malaria.

Giving supplements containing iron, folic acid, copper and vitamins to more than 600 Tanzanian children — aged between six months and five years — with iron deficiency increased their likelihood of contracting malaria by 41 per cent, researchers found.

Supported by another study conducted in 2006 — which found that iron and folic acid supplements increased malaria-related hospitalisation and deaths by 12 per cent — the authors have concluded that, although more research is needed, iron could be responsible for the increased risk.

Although the overall incidence of [malaria](#) across the whole study was not affected, children given micronutrients contracted the disease for the first time earlier in their lives. Micronutrient supplementation was also linked with a greater number of malaria parasites in the blood of babies less than 18 months with severe malaria — but this effect reduced with age.

The results, published in *PLoS Medicine* last month (22 November), add to growing concerns that providing micronutrients — which the WHO recommends for young children and pregnant women — may be doing more harm than good in malaria-endemic areas.

"For many parts of Africa, we caution against supplementation with vitamins and minerals other than zinc as there is considerable evidence that this can increase the risk of malaria," Hans Verhoef, a researcher at Wageningen University, Netherlands, and the London School of Hygiene and Tropical Medicine, United Kingdom, and an author of the study, told *SciDev.Net*.

"This is a dilemma, because children and women are often deficient in these micronutrients," he added.

The study also showed that zinc supplements have no effect on malaria rates, dashing hopes that it could provide an extra tool for fighting malaria.

Although the study calls into question the validity of the WHO's recommendation, Verhoef agreed that a small amount of iron (less than is contained in the supplements) added to fortified foods may improve the health of women and children.

He added that women in malaria-prone areas should continue to take iron supplements during pregnancy but should also ensure that they receive antimalarials in accordance with guidelines issued by their governments.

But Elizabeth Juma, an epidemiologist for the Kenya Medical Research Institute, said that iron supplements should continue to be provided as they are important for combatting the anaemia that malaria often causes.

By only providing patients with iron supplements after the malarial symptoms have been treated, the reduction of the drugs' effects could be avoided, she said.

[Link to full article in PLoS Medicine](#)

[Link to 2006 article by Sazawal et al.](#)

## REFERENCES

*PLoS Medicine* doi:10.1371/journal.pmed.1001125 (2011)

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## Health test crucial for GM pilot crop

**Ministry of Agriculture and Rural Development's Science, Technology and Environment Department Director Trieu Van Hung spoke to the Tien Phong (Vanguard) newspaper about genetically modified corn.**

*Is planting of genetically modified crops set to start next year?*

This has not been decided by the Ministry of Agriculture and Rural Development. The plant of genetically modified crops on a large scale must be implemented in accordance with very strict process, requiring the joint forces of the ministries of Agriculture and Rural Development, Natural Resource and Environment, and Health.

The process must undergo five phases. Safety tests on the pilot crop have not yet finished.

So, the time to start planting the crop has not been set.

*What are the five phases?*

First, the ministry must implement a pilot planting of genetically modified corn and test the biological safety on the biodiversity and environment, regulated in Circular No 69 issued in 2009. The findings must be approved by the minister.

Then, the Ministry of Natural Resources and Environment will be in charge of assessing the biological safety.

After that, a certificate allowing the planting of genetically modified trees for livestock feeding will be granted by the Ministry of Agriculture and Rural Development.

The four steps would be taken by the Ministry of Health to assess the crop's safety to human health and to certify that genetically modified crops could be used as food for human beings.

Finally, the Ministry of Agriculture and Rural Development would announce kinds of genetically modified crops to be planted on a large scale, based on their agronomic traits.

*Which phases have been completed since we started the pilot planting of GM corn last year?*

The Ministry of Agriculture and Rural Development has implemented a pilot planting of genetically modified corn with worm and herbicide resistance in a narrow scale since last year.

A larger-scale pilot crop started in some localities one year later.

The crop yield was found to be the same as non-modified corn varieties but the resistance was better.

The genetically modified corn was tested and proved safe to the biodiversity and environment surrounding the fields.

We have only just finished the phase of implementing the pilot crop of genetically modified crops on a large scale and proved its safety in terms of biodiversity and the environment. — VNS

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News

## Scientists push for agricultural monitoring

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**Network would collect environmental and socioeconomic data from around the world.**

[Jeff Tollefson](#)



Scientists want to monitor agriculture in Africa and elsewhere to learn how humans are affecting the planet. *ALEXANDER JOE/AFP/Getty Images*

A global agricultural monitoring network moved a step closer to reality this week with a meeting between a small group of academics and potential patrons at Columbia University in New York City.

Human agriculture has transformed the face of the planet, changing the flow of fundamental nutrients like nitrogen, and the pressure is only going to grow as the population rises in coming decades. Earth Institute Director Jeffrey Sachs told the meeting's attendees that scientists simply do not have the data they need to properly explore this dynamic.

"We want to understand ecosystems and the people who are living in them," Sachs said, warning his colleagues not to count on their governments for funding or leadership. "It's up to us."

Sponsored by Conservation International, the Earth Institute and the Bill and Melinda Gates Foundation, the meeting brought scientists together with big businesses and various philanthropic organizations to discuss ways to track both ecological and socioeconomic trends in agricultural areas. Participants spent most of the

meeting discussing what such a network might look like, how existing resources could be used and how to get the network off the ground quickly.

Sandy Andelman, an ecologist with Conservation International in Arlington, Virginia, discussed her work setting up a pilot project that began two years ago in southern Tanzania. In addition to basic environmental data about soils, nutrients and land cover, the project tracks agricultural practices. It also incorporates data about income, health and education that is maintained by the government. Andelman says that all the data she collects can be broken down to the level of individual households, and that initial results from the project have already prompted the Tanzanian government to adjust the way it zones agricultural land in the area.

Andelman says that a similar system could be set up to begin monitoring across Africa, Asia and South America for a total of about US\$12 million a year. "This is an incredible bargain," she says. "We're at a point where we have to stop talking and start working together."

### Getting the ball rolling

Representatives of philanthropic organizations were generally enthusiastic. The John D. and Catherine T. MacArthur Foundation of Chicago, Illinois, has already put up funding for Andelman to set up a second site in Rwanda, and the Gates Foundation, headquartered in Seattle, Washington, expects to make a decision on three additional sites in Africa in the coming months. Meanwhile, the Gordon and Betty Moore Foundation, based in Palo Alto, California, said it would consider folding in three new monitoring sites that it is planning to fund in South America next year.

Scientists are also hoping that global food companies will play a large role both in financing and contributing data to the new network. Robert ter Kuile, a senior director for environmental sustainability issues at PepsiCo, based in Purchase, New York, says the network could provide valuable information for industry. PepsiCo is always looking for data to evaluate its supplies of corn, potatoes, oranges and oats, he says, including everything from water supplies and soil conditions to income and agrochemical use at the level of individual farmers.

Some attendees said that, even with broad support, setting up such a vast network will take time. "It's unrealistic for us to expect we are going to come up with a global system in the next few months or the next year," said Prabhu Pingali, the Gates Foundation's deputy director for agricultural development. "Let's think about a dozen or so sites that we can start with and let's just get the ball rolling."

But Sachs is more optimistic – and aggressive – about the timeline. He is also focused on ways to incorporate existing research sites and monitoring networks maintained by scientists and businesses. If the group can attract industry support, as he believes it must, Sachs sees no reason why the network couldn't achieve something on the order of 500 sites within two or three years. "We need to get this thing up and running," he says, warning of the perils of endless organizational meetings. "I don't want to spend ten years on this."

## They're off – and running? Dengue resistant *Aedes aegypti*

Submitted by mqbenedict on September 22, 2011 - 16:41

Hoffmann et al. recently reported a highly noteworthy establishment of *Wolbachia*-infected *Aedes aegypti* in two Australian towns. With the potential to greatly reduce the dengue risk in these communities, this bio-control is a remarkable demonstration of the potential for heritable factors to interfere with disease. The project is off to a great start. The big question is, can the technology finish the race? And how much push will be required to make it happen? I'll make my prediction about where this is headed.

Ok. Yes, I know. You've read all about it on the BBC or CNN etc. Given my experience with such reports in popular media, they are wildly enthusiastic but scientifically a mile wide and an inch deep. (If you prefer metric, make that 1.61 km wide and 2.54 cm deep. That depth estimate remains generous.) So, even though I'm a bit behind the curve jumping on the story, here is my take.

[Hoffmann et al.](#) have reported that by releasing *Wolbachia*-infected *Aedes aegypti* in two Australian towns they were able to establish infected mosquitoes at frequencies higher than 90%. (The team was led by Scott O'Neill and funded by the Gates Foundation.)

What's special about these mosquitoes? This particular *Wolbachia* infection has strong suppression effects on dengue virus ([I blogged about a related strain here on MW.](#)) While establishing such a *Wolbachia* will have little effect on nuisance biting, the residents in the trial area can take some comfort that dengue risk is likely much, much lower.

A critical part of establishing the infection is that females that carry the *Wolbachia* transmit it to their progeny. Male progeny that carry it are sterile when mated to females that do not. This tends to favor or "drive" the infection in a population, but only if a critical fitness-loss threshold is not exceeded. The research team estimated that no more than 30% loss of fitness could be tolerated and spread would still occur. Based on the successful establishment of the *Wolbachia*, this was not exceeded.

So, what do we have here? Potentially, a method to greatly reduce risk of dengue infection by relatively small – and cheap – releases (< 300,000 in these two towns) of mosquitoes. The technology is highly suitable for dense urban areas. Will the infection persist at high frequencies into the next season? The jury is out, but this is a critical question, the answer to which will determine how the technology can be implemented and what the cost will be.

The intrinsic rate of spread and persistence of *Wolbachia* infected mosquitoes are critical parameters for the future use of the technology. The research team expects that unassisted spread is not likely since a critical frequency of infection must occur before this happens. On the plus side, unassisted spread reduces the costs: On the negative side, there is no control to its spread. This is not a concern for public health, but it might result in some uncomfortable transnational implications. In my view, if huge extents of *Aedes aegypti* populations were unable to support dengue transmission, public health would benefit.

I'll set myself up for being shown wrong and predict that the infection will spread. *Aedes aegypti* do not disperse far, and high frequencies of *Wolbachia* are certain to occur in some pockets. So while there may be boundaries where an equilibrium exists, spatial and temporal heterogeneity will mess with the parameters of this calculation. If populations were homogeneous spatially, I wouldn't be so ready to make this prediction. Check back in a year or two.

Meanwhile, the Bill and Melinda Gates Foundation and the research team has a remarkable success to their credit. This achievement creates a good model for what those developing malaria might accomplish. Let's hope that a technology that has started hot out of the gate has the stamina to finish as a large-scale real-world public health intervention.