From: sarah walter <sarahrealty1@gmail.com>

County: Broward

Zip Code: 33334

Phone Number: 9548656231

Message Body: As a republican, I find it hard to believe that Nelson who is a democrat voted against the Dark Act and you, Mr. Scott voted for it!!! We have the right to know what is in our food! I already have to spend more money to buy organic food that is not poisoned with glyphosate. GMO's have been shown to cause tumors in rats, yet you want to expose our children to this? Why can't we have natural untainted food? Why can't that be the norm, like in other countries. Stop accepting bribe money from monsanto, Big Pharma or GMO organizations and protect the American people cause in the end we all have to give an account for our life here on earth. Why in the world would our gov't purposely poison it's own people? The air, the food, the water!!! It is completely out of control. Where is the EPA and why don't more politicians care when this is the single most important issue for the health and survival of our families. Or are you in support of Agenda 21 as well? I am extremely disappointed in the republican candidates who voted for the Dark Act. I don't know who to vote for at this point. Hopefully Trump can turn this party around, since it seems he is the only one who is not BOUGHT!!!
From: sarah walter <sarahrealty1@gmail.com>

County: Broward

Zip Code: 33334

Phone Number: 9548656231

Message Body: As a republican, I find it hard to believe that Nelson who is a democrat voted against the Dark Act and you, Mr. Scott voted for it!!!

We have the right to know what is in our food! I already have to spend more money to buy organic food that is not poisoned with glyphosate. GMO's have been shown to cause tumors in rats, yet you want to expose our children to this? Why can't we have natural untainted food? Why can't that be the norm, like in other countries. Stop accepting bribe money from monsanto, Big Pharma or GMO organizations and protect the American people cause in the end we all have to give an account for our life here on earth. Why in the world would our gov't purposely poison it's own people? The air, the food, the water!!! It is completely out of control. Where is the EPA and why don't more politicians care when this is the single most important issue for the health and survival of our families. Or are you in support of Agenda 21 as well? I am extremely disappointed in the republican candidates who voted for the Dark Act. I don't know who to vote for at this point. Hopefully Trump can turn this party around, since it seems he is the only one who is not BOUGHT!!!
From: Governor Rick Scott
To: DEP (publicservices@dep.state.fl.us)
Cc: Sunburst
Subject: FW: Move the water SOUTH!
Date: Monday, June 06, 2016 2:45:19 PM

-----Original Message-----
From: Helen [mailto:news2notice@msn.com]
Sent: Sunday, June 05, 2016 3:59 PM
To: Governor Rick Scott <GovernorRick.Scott@eog.myflorida.com>
Subject: Move the water SOUTH!

From: Helen <news2notice@msn.com>
County: St. Lucie
Zip Code: 34957
Phone Number: 772-229-6033

Message Body: We read the Stuart news. You're in charge. You're like the Republican elephant scared of a mouse in your fear of a mosquito! Fix the FLOW to the River of Grass! Oxitec has a mosquito solution. How can you be afraid of GMO when you're allowing more benzene in the water? Pro-Life? yeah, right!
From: Sarah Conway [mailto:sarah-kate@comcast.net]
Sent: Friday, April 22, 2016 4:29 PM
To: Governor Rick Scott
Subject: Phone meeting

Dear Governor Scott,

I spoke to your staff today and requested a phone meeting with you on the topic of the proposed release of genetically modified mosquitoes in Florida. As a biologist, physician, and health consultant with colleagues in internal medicine and tropical medicine, I have grave concerns about the release of these dangerous mosquitoes. There is a push from above to suggest that the release of these insects would prevent the problem of zika virus spread, when in fact, it IS the problem. The havoc that these mosquitoes have already wreaked in Brazil would happen here in the US, and we would see the same outbreaks in Florida, creating a devastation in the tourism industry. As the insects would thereafter move across the US, the entire country will be exposed to the epidemic. We cannot allow this to happen, and must protect our citizens.

We need more natural solutions to kill mosquitoes, and GMO mosquitoes are not the answer.

I look forward to speaking with you at your convenience.

Please advise when you would be available.

Thank you for your time.

Best,

Sarah
Sarah Conway, MD
President
Delphi Radiology Associates
847-212-0224
Please find attached correspondence received and responded to by the Governor's Office of Citizen Services. This correspondence is forwarded to your office for review and any response or action appropriate.

Thank you.

Sincerely,

Martha Lynn
Office of Citizen Services
Executive Office of the Governor
@ItsWorkingFL

---

From: David Christopherson [mailto:fertiliz@bellsouth.net]
Sent: Thursday, May 12, 2016 2:08 PM
To: Governor Rick Scott
Subject: ZIKA IN THE US

Dear Governor Rick Scott;

We are aggressively pursuing a ZIKA solution. You might be interested with a video that we received from PhD Derric Nimmo. Derric is the senior man involved in developing the Aedes Aegypti male sterile mosquitos. He speaks on the video and it is very enlightening, (see the video) https://vimeo.com/163736285 and also see the attachment above.

Regards,

DAVID CHRISTOPHERSON
Vice President
CAS
Oxitec Mosquito Vector Control Technology
**Growing Global Health and Economic Threat from**

- *Aedes aegypti* is the primary vector for dengue, chikungunya and Zika
  - Dengue and chikungunya share some symptoms (joint pain, fever) - haemorrhagic fever can result in mortality
  - Zika has been shown to cause microcephaly in babies (CDC) and linked to Guillain-Barré syndrome
- These arboviruses are transmitted to humans by the bites of *Aedes* females
- *Aedes* mosquito control is difficult
  - Anthropophilic
  - Small and varied breeding sites
Special Emerging Issues with Zika

PAHO/WHO Issues an Alert: Zika Cases Have Now Been Reported in the U.S.

“In a move that signals growing concerns over the spread of Zika virus and its neurologic complications, the Pan American Health Organization (PAHO) issued an alert about the threat, urging countries in the region to be on the lookout for the disease and to watch for unusual patterns in newborns.”

Zika Distribution

Aedes aegypti presence in the US and the threat of Zika

Proprietary male mosquitoes carry a self-limiting gene that causes late-acting lethality in the progeny after mating with wild-type females.

Approach targeted to reduce vector-mosquito population size.

Program is practical and cost-effective.

Oxitec male mosquitoes are produced for release and mate with pest females.

Offspring die before they can reproduce and transmit disease.
How Oxitec’s Technology Works

Injecting genes into an insect egg

Self Limiting Gene
- Inherited - offspring do not survive to adulthood
- Repressed with an antidote during male insect production, allowing low cost multiplication
- After releases stopped, genes disappear from the gene pool and environment

Fluorescent Marker Gene
- Fluorescent protein detected by special light
- Identifies helpful mosquitoes vs. pest ones
- Allows estimation of pest population sizes
- Monitoring of pest population suppression
- Releases adjusted in nearly real time
- ‘Track and trace’ capability
Control program

Filter Colony (Oxitec UK)
- Hybrid strain
- High Quality control
- Fitness
- Genetic diversity
- Longevity

Eggs sent to trial site

Rearing cabin / factory at/near trial site

Monitoring

Release by vehicle / hand

Sex-sort pupae
Males for release
Oxitec Mosquito Trial Results Summary

Up to 90+% suppression of Aedes aegypti in selected field trials and projects

Cayman: Mosquito Research Control Unit
Brazil: University of São Paulo and Moscamed
Panama: The Gorgas Institute
Mosquito control and disease transmission

Data from Carvalho et al (2015) PLOS NTD
Key Benefits

Efficiency

- Targeted delivery: males are attracted to wild females whose offspring die at the larvae and pupal stage (consuming resources along the way)
- Insects and offspring contain a marker gene that is easy to monitor - “track and trace”
- Local deployment by local people

Safety

- Male-focused releases, only females bite
- Genetic change is not toxic or allergenic

Environment

- Species-specific pest control, no off-target effects
- Reduction of Aedes does not impact insects or other animals that may feed on Aedes
- Neither insects nor progeny persist over time in the environment
Regulatory process in the US

- Preliminary Finding of No Significant Impact by the FDA-CVM, CDC and EPA
- FDA led group evaluated many risks including:
  - Toxic or allergenic reactions by exposure to the introduced proteins
  - Increases in disease incidence or transmission of diseases vectored by the mosquitoes
  - Release of female Aedes aegypti mosquitoes
  - Impacts on non-target organisms, including animals and humans, and the wider ecosystem
  - Survival, spread and establishment in the environment including the potential for any vacated niche to be replaced with other vectors
  - Potential for the introduced Oxitec genes to be transferred to other organisms
  - The probability of adverse impacts associated with rearing of OX513A mosquitoes was found to be extremely unlikely
Endorsements of Oxitec technology

- Preliminary Finding of No Significant Impact by the FDA-CVM, CDC and EPA
- World Health Organization (WHO)
  - After their review of several new tools with the potential to reduce vector populations, the VCAG issued a positive recommendation in support of Oxitec’s self-limiting mosquito (OX513A)
- Pan American Health Organisation (PAHO)
  - offering to provide technical cooperation to support pilot studies of new mosquito control technologies, as part of its response to the Zika epidemic
- CTNBio approved OX513A for release anywhere in Brazil in 2014 and Anvisa grant special temporary registration in April 2016
Oxitec insects reviewed by independent experts

Regulatory precedents across all Oxitec GM insects

Import and contained trials approved
- Austria
- France
- Greece
- Guatemala
- Israel
- Singapore
- Thailand
- Vietnam
- UK

Current applications for outdoor release
- India
- Spain
- Caribbean
- USA

Oxitec *Aedes aegypti* received approval from CTNBio for nationwide releases in Brazil April 2014

Outdoor release approved
- Brazil
- Cayman
- Malaysia
- Mexico
- USA
- Panama
Summary of surveys in the Keys for support of release of GM mosquitoes

http://keysmosquito.org/modified-mosquito-surveys/
Summary

- Oxitec has had field success suppressing the pest populations of *Aedes aegypti* in selected field trials in urban areas by 90+%.
- CTNBio in Brazil have approved the Oxitec mosquito (OX513A) from an efficacy and environmental safety perspective for commercial application.
- FDA-CVM, CDC and EPA issued preliminary Finding of No Significant Impact.
- The Oxitec mosquito contains a “self limiting” gene, preventing environmental persistence.
- In Panama *Aedes aegypti* control did not facilitate invasion by other mosquito species over a 12 month period.
- Oxitec has solutions for other mosquitoes including *Aedes albopictus*.
- The technology is synergistic with future vaccine and therapeutic drug interventions.
-----Original Message-----
From: Paul Phinney <Phineas7@comcast.net>
Sent: Wednesday, May 25, 2016 6:56 AM
To: Governor Rick Scott <GovernorRick.Scott@eog.myflorida.com>
Subject: ZIKA VIRUS EMERGENCY CRISIS

From: Paul Phinney <Phineas7@comcast.net>
County: Broward
Zip Code: 33305
Phone Number:

5/25/16

Re: ZIKA VIRUS EMERGENCY CRISIS

Dear Governor Scott:

As a Ft. Lauderdale resident, I am shocked and dismayed that U.S. House and Senate legislators apparently committed reprehensible gross negligence by taking a cavalier ill-timed recess instead of passing EMERGENCY FEMA FUNDING legislation to combat the current Zika virus worldwide epidemic that has already invaded the U.S. in Puerto Rico and several states.


I sent an urgent letter by fax on 5/19/16 (see below) to House Speaker Paul Ryan about the extreme urgency for the House and Senate to act on the Zika emergency before going on recess and before June 2016. Apparently, this fell on deaf ears.

May 19, 2016

The Honorable Paul Ryan
Office of the Speaker
H-232 The Capital
Washington, DC 20515

Re: ZIKA VIRUS CRISIS

Dear Mr. Speaker:

The undersigned recently reviewed the Zika virus article appearing in the May 2016 issue of Time magazine. This article serves as a superb and succinct executive summary of the current Zika virus crisis, with pertinent facts
thereto and currently envisioned solutions therefor. This should be assigned reading for all legislative members of the House and the Senate. With summer approaching, time is of the essence for the federal government to quickly act before June 2016 to provide sufficient emergency funding for federal and state programs to combat this exigent Zika crisis. The Zika virus is spread primarily by the Aedes aegypti mosquito species in summertime.

PLEASE PASS APPROPRIATE FUNDING LEGISLATION NOW BEFORE CONGRESS’ RECESS!

Bullet points on the precariously imminent Zika virus crisis economic devastation include:
- Mosquitoes are the most dangerous animals posing an existential threat to Homo Sapiens.
- The Aedes aegypti mosquito species population should be locally decimated (not made extinct).
- Mother Nature would not approve of the extermination of an entire species (what comes next?).
- Genetically modified male Aedes mosquitoes should be deployed immediately (available now).
- $7 is the estimated cost for each individual U.S. citizen by deploying GMO male mosquitoes.
- The copulating GMO male mosquitoes would result in localized deaths of newborn offspring.
- According to the Time magazine article, developing a Zika virus cure could take 5-10 years.
- U.S. infants born with Zika-microcephaly => catastrophic health care costs plus labor loss.
- Given such a catastrophic scenario, the U.S. and worldwide economies could take a nosedive.
- Infected mosquito eggs can survive without water for at least one year.

A 2-pronged approach: deploy GMO male mosquitoes now … start developing Zika cure.

Respectfully submitted,

Paul Phinney

VIA FACSIMILE: 202-225-2012 Office of the Speaker

P.S. An Ebola cure already exists, but it has not been fully approved in the U.S. or elsewhere.

Sincerely,

Paul Phinney

cc: Sun Sentinel  
    Washington Post ~ national@washpost.com
From: Governor Rick Scott
To: "DOH (health@doh.state.fl.us)"
Cc: Sunburst
Subject: FW: ZIKA
Date: Friday, April 29, 2016 1:44:25 PM

-----Original Message-----
From: Steve Wise [mailto:drwise@wisewaysinc.com]
Sent: Friday, April 29, 2016 1:07 PM
To: Governor Rick Scott <GovernorRick.Scott@eog.myflorida.com>
Subject: ZIKA

From: Steve Wise <drwise@wisewaysinc.com>

County: Duval

Zip Code: 32266

Phone Number: 9049940997

Message Body: Please take immediate action to stop this deadly and dangerous disease from coming to Florida. The Oxitec GMO mosquito has been shown to effective and the government red tape slowing its use will cause death and destruction. Immediate action is needed. If the approval method is too onerous for the obvious GMO solution, other avenues must be started quickly.
From: Governor Rick Scott
To: "DOH (health@doh.state.fl.us)"
Cc: Scheduling Requests; Sunburst
Subject: FW: ZIKA
Date: Monday, May 09, 2016 2:34:12 PM

From: David Christopherson [mailto:fertiliz@bellsouth.net]
Sent: Monday, May 09, 2016 1:57 PM
To: Governor Rick Scott
Subject: ZIKA

Governor Scott;
I am pleased to inform you that I was able to persuade Dr. Derric Nimmo, product Development Manager of OXITEC Ltd. In the U.K. to join me in a business dinner Monday evening May the 16th, Dr. Derric is the project manager for the sterile male trials going on in the Keys and that are proposed in the Cayman Islands. I know this is short notice, but he’s an extremely busy man. Please confirm your attendance or someone representing you so I can inform Dr. Nimmo who the attendees will be.

Best regards,
DAVID CHRISTOPHERSON
Vice President
Phone: 305-595-6738 / cell: 305-989-3444

From: David Christopherson [mailto:fertiliz@bellsouth.net]
Sent: Wednesday, May 04, 2016 2:40 PM
To: rick.scott@eog.myflorida.com
Subject: ZIKA AND GUILLAIN-BARRE SYNDROME
Importance: High

Governor Scott;

**URGENT URGENT URGENT**

I have just been informed from our Barbados office that Mr. Roland Bovell – 49-years old a friend of one of the employees is in Queen Elizabeth hospital where he has been induced in to a coma. He has been diagnosed with ZIKA and Guillain-Barre Syndrome – see attached. It is in the opinion of the local medical personnel that he was infected with the ZIKA virus. How many people are going to die before we take action? Our proposal was sent to you on April 13, 2016 and we have not gotten a response. Please help us to save multiple people in the Caribbean.

Sincerely yours,
DAVID CHRISTOPHERSON
From: Pat Wayman <pat.wayman@gmail.com>

County: Sarasota

Zip Code: 34292

Phone Number: 941-412-0193

Message Body: Please do NOT allow the release of Genetically Engineered mosquitoes in the Florida Keys. There have been no studies done on these. Genetics should not be messed with and then released to mate and bite/infect other species. The year after this was done in Brazil, there was a Zika epidemic. We do not have a Zika problem or Dengue fever problem, so please do not allow the release of these mosquitoes. The comment period on the government site ends in a week. There is time to stop this.
From: Pat Wayman <pat.wayman@gmail.com>

County: Sarasota

Zip Code: 34292

Phone Number: 941-412-0193

Message Body: Please do NOT allow the release of Genetically Engineered mosquitoes in the Florida Keys. There have been no studies done on these. Genetics should not be messed with and then released to mate and bite/infect other species. The year after this was done in Brazil, there was a Zika epidemic. We do not have a Zika problem or Dengue fever problem, so please do not allow the release of these mosquitoes. The comment period on the government site ends in a week. There is time to stop this.
Release of GMO mosquitoes was previously negated because of unknowns; those unknowns still exist - no existing research on long term outcomes.

NO to release of GMO mosquitoes in Florida!!
Release of GMO mosquitoes was previously negated because of unknowns; those unknowns still exist - no existing research on long term outcomes.

NO to release of GMO mosquitoes in Florida!!
From: Helen
To: Governor Rick Scott
Subject: Move the water SOUTH!
Date: Sunday, June 05, 2016 3:59:11 PM

From: Helen <news2notice@msn.com>
County: St. Lucie
Zip Code: 34957
Phone Number: 772-229-6033

Message Body: We read the Stuart news. You're in charge. You're like the Republican elephant scared of a mouse in your fear of a mosquito! Fix the FLOW to the River of Grass! Oxitec has a mosquito solution. How can you be afraid of GMO when you're allowing more benzene in the water? Pro-Life? yeah, right!
From: Helen <news2notice@msn.com>

County: St. Lucie

Zip Code: 34957

Phone Number: 772-229-6033

Message Body: We read the Stuart news. You're in charge. You're like the Republican elephant scared of a mouse in your fear of a mosquito! Fix the FLOW to the River of Grass! Oxitec has a mosquito solution. How can you be afraid of GMO when you're allowing more benzene in the water? Pro-Life? yeah, right!
Dear Governor Scott,

I spoke to your staff today and requested a phone meeting with you on the topic of the proposed release of genetically modified mosquitoes in Florida. As a biologist, physician, and health consultant with colleagues in internal medicine and tropical medicine, I have grave concerns about the release of these dangerous mosquitoes. There is a push from above to suggest that the release of these insects would prevent the problem of zika virus spread, when in fact, it IS the problem. The havoc that these mosquitoes have already wreaked in Brazil would happen here in the US, and we would see the same outbreaks in Florida, creating a devastation in the tourism industry. As the insects would thereafter move across the US, the entire country will be exposed to the epidemic. We cannot allow this to happen, and must protect our citizens.

We need more natural solutions to kill mosquitoes, and GMO mosquitoes are not the answer.

I look forward to speaking with you at your convenience.

Please advise when you would be available.

Thank you for your time.

Best,

Sarah

Sarah Conway, MD

President

Delphi Radiology Associates

847-212-0224
Dear Governor Scott,

I spoke to your staff today and requested a phone meeting with you on the topic of the proposed release of genetically modified mosquitoes in Florida. As a biologist, physician, and health consultant with colleagues in internal medicine and tropical medicine, I have grave concerns about the release of these dangerous mosquitoes. There is a push from above to suggest that the release of these insects would prevent the problem of zika virus spread, when in fact, it IS the problem. The havoc that these mosquitoes have already wreaked in Brazil would happen here in the US, and we would see the same outbreaks in Florida, creating a devastation in the tourism industry. As the insects would thereafter move across the US, the entire country will be exposed to the epidemic. We cannot allow this to happen, and must protect our citizens.

We need more natural solutions to kill mosquitoes, and GMO mosquitoes are not the answer.

I look forward to speaking with you at your convenience.

Please advise when you would be available.

Thank you for your time.

Best,

Sarah
Sarah Conway, MD
President
Delphi Radiology Associates
847-212-0224
From: Charles Garrison
To: Governor Rick Scott
Subject: Please support labeling for GMO foods
Date: Friday, April 22, 2016 3:42:46 PM

From: Charles Garrison <charlesrgarrison@bellsouth.net>

County: Out of State

Zip Code: 32177

Phone Number:

Message Body: Please make labels required for genetically engineered food (commonly known as GMOs) in Florida.

Genetically engineered foods are largely untested and are not labeled. As a concerned citizen and consumer, I deserve the right to know what's in the food I feed my family as well as how that food is produced.

I urge you to protect your constituents' right to know by supporting legislation that would require labeling genetically engineered food.
From: Charles Garrison 
To: Governor Rick Scott 
Subject: Please support labeling for GMO foods 
Date: Friday, April 22, 2016 3:42:48 PM

From: Charles Garrison <charlesrgarrison@bellsouth.net>

County: Out of State
Zip Code: 32177
Phone Number:

Message Body: Please make labels required for genetically engineered food (commonly known as GMOs) in Florida.

Genetically engineered foods are largely untested and are not labeled. As a concerned citizen and consumer, I deserve the right to know what's in the food I feed my family as well as how that food is produced.

I urge you to protect your constituents' right to know by supporting legislation that would require labeling genetically engineered food.
HI, I am the creator of petition against the release of GM Mosquitoes in the Florida Keys with over 164,000 signatures. They want to experiment this in an area where never been a case of Dengue and against the desire of the residents. 75% of the residents in the area are strongly against to the experiment. The worse is that all over the news headlines are "The Florida Keys are releasing Millions of GM Mosquitoes to fight Zika"

At this point, the potential damage that can cause to our tourist economy could be catastrophically damage not only in the Keys but potentially in the rest of state. The FDA called a Clinical trial? The only date is provided by the company who want to sell the product and the total liability insurance carry by this company for public health, depreciation on property values and potential damage to tourist economy is 8 million dollars.

With great power come great responsibility. Monroe county have the highest occupancy rates in Florida and unfortunately we know that regular people believe what they see in tv for 10 seconds and is not good.

Here is a sample of what is happening in Media

we are talking up to 1 million of GM Mosquitoes a month for up 22 months.

What ultimately the purpose of the meeting will be asking the Governor to write a letter to the FDA to ask for additional 90 days for public comments. There schools, hospital, golf club in less than a mile from the testing site and they need to notify the people of what is happening.

We are getting Congressman man and senators to write the letter asking for 90 days.

At this point, if Governor decline or the request I will update the 164K petitioner.

Very respectfully
Mila

--

In the End, we will remember not the words of our enemies, but the silence of our friends.
Martin Luther King, Jr.

Mila de Mier Epro. Your Southernmost Realtor
Residential, Commercial and Investments
825 Duval #3 Key West, Florida 33040
Website: http://southernmostrealty.com Email: milademier@gmail.com
Cell: (305) 731-9731
Toll Free: 1-877-90 MILES (877-906-4537)
E-fax: (305) 768-2228
Dear Governor Rick Scott;
We are aggressively pursuing a ZIKA solution. You might be interested with a video that we received from PhD Derric Nimmo. Derric is the senior man involved in developing the Aedes Aegypti male sterile mosquitos. He speaks on the video and it is very enlightening, (see the video) https://vimeo.com/163736285 and also see the attachment above.

Regards,
DAVID CHRISTOPHERSON
Vice President
CAS
Oxitec Mosquito Vector Control Technology
**Aedes aegypti** is the primary vector for dengue, chikungunya, and Zika.

- Dengue and chikungunya share some symptoms (joint pain, fever) - haemorrhagic fever can result in mortality.
- Zika has been shown to cause microcephaly in babies (CDC) and linked to Guillain-Barré syndrome.

These arboviruses are transmitted to humans by the bites of **Aedes** females.

**Aedes** mosquito control is difficult.

- Anthropophilic
- Small and varied breeding sites
PAHO/WHO Issues an Alert: Zika Cases Have Now Been Reported in the U.S.

“In a move that signals growing concerns over the spread of Zika virus and its neurologic complications, the Pan American Health Organization (PAHO) issued an alert about the threat, urging countries in the region to be on the lookout for the disease and to watch for unusual patterns in newborns.”


Zika Distribution
Aedes aegypti presence in the US and the threat of Zika

Oxitec’s New Paradigm to Control *Aedes aegypti* Borne Diseases

- Proprietary male mosquitoes carry a self-limiting gene that causes late-acting lethality in the progeny after mating with wild-type females
- Approach targeted to reduce vector-mosquito population size
- Program is practical and cost-effective

Oxitec male mosquitoes are produced for release and mate with pest females

Offspring die before they can reproduce and transmit disease
How Oxitec’s Technology Works

Injecting genes into an insect egg

Self Limiting Gene
- Inherited - offspring do not survive to adulthood
- Repressed with an antidote during male insect production, allowing low cost multiplication
- After releases stopped, genes disappear from the gene pool and environment

Fluorescent Marker Gene
- Fluorescent protein detected by special light
- Identifies helpful mosquitoes vs. pest ones
- Allows estimation of pest population sizes
- Monitoring of pest population suppression
- Releases adjusted in nearly real time
- ‘Track and trace’ capability
Control program

Filter Colony (Oxitec UK)
- Hybrid strain
- High Quality control
- Fitness
- Genetic diversity
- Longevity

Eggs sent to trial site

Rearing cabin / factory at/near trial site

Monitoring

Release by vehicle /hand

Sex-sort pupae
Males for release

INTREXON® | Health
Oxitec Mosquito Trial Results Summary

Up to 90+% suppression of *Aedes aegypti* in selected field trials and projects

Cayman: Mosquito Research Control Unit
Brazil: University of São Paulo and Moscamed
Panama: The Gorgas Institute
Mosquito control and disease transmission

Data from Carvalho et al (2015) PLOS NTD
Key Benefits

Efficiency

- Targeted delivery: males are attracted to wild females whose offspring die at the larvae and pupal stage (consuming resources along the way)
- Insects and offspring contain a marker gene that is easy to monitor - “track and trace”
- Local deployment by local people

Safety

- Male-focused releases, only females bite
- Genetic change is not toxic or allergenic

Environment

- Species-specific pest control, no off-target effects
- Reduction of *Aedes* does not impact insects or other animals that may feed on *Aedes*
- Neither insects nor progeny persist over time in the environment
Regulatory process in the US

- Preliminary Finding of No Significant Impact by the FDA-CVM, CDC and EPA
- FDA led group evaluated many risks including:
  - Toxic or allergenic reactions by exposure to the introduced proteins
  - Increases in disease incidence or transmission of diseases vectored by the mosquitoes
  - Release of female Aedes aegypti mosquitoes
  - Impacts on non-target organisms, including animals and humans, and the wider ecosystem
  - Survival, spread and establishment in the environment including the potential for any vacated niche to be replaced with other vectors
  - Potential for the introduced Oxitec genes to be transferred to other organisms
  - The probability of adverse impacts associated with rearing of OX513A mosquitoes was found to be extremely unlikely
Endorsements of Oxitec technology

- Preliminary Finding of No Significant Impact by the FDA-CVM, CDC and EPA
- World Health Organization (WHO)
  - After their review of several new tools with the potential to reduce vector populations, the VCAG issued a positive recommendation in support of Oxitec’s self-limiting mosquito (OX513A)
- Pan American Health Organisation (PAHO)
  - offering to provide technical cooperation to support pilot studies of new mosquito control technologies, as part of its response to the Zika epidemic
- CTNBio approved OX513A for release anywhere in Brazil in 2014 and Anvisa grant special temporary registration in April 2016
Oxitec insects reviewed by independent experts

Regulatory precedents across all Oxitec GM insects

Import and contained trials approved
- Austria
- France
- Greece
- Guatemala
- Israel
- Singapore
- Thailand
- Vietnam
- UK

Current applications for outdoor release
- India
- Spain
- Caribbean
- USA

Oxitec Aedes aegypti received approval from CTNBio for nationwide releases in Brazil April 2014
Outdoor release approved
- Brazil
- Cayman
- Malaysia
- Mexico
- USA
- Panama
Summary of national surveys for the support of release of GM mosquitoes

- Oxitec independent survey US (n=1079)
- Oxitec independent survey Florida (n=507)
- Purdue study (n=964)
- Annenberg Science Knowledge Survey (n=505)
- Associated Press (n=1004)

Support
Neutral
Oppose
Don't know

https://extension.purdue.edu/Pages/article.aspx?intItemID=14074
http://www.apnorc.org/PDFs/Zika/Zika%20Topline_FINAL.pdf
Summary of surveys in the Keys for support of release of GM mosquitoes

http://keysmosquito.org/modified-mosquito-surveys/

Summary

- Oxitec has had field success suppressing the pest populations of *Aedes aegypti* in selected field trials in urban areas by 90+%.
- CTNBio in Brazil have approved the Oxitec mosquito (OX513A) from an efficacy and environmental safety perspective for commercial application.
- FDA-CVM, CDC and EPA issued preliminary Finding of No Significant Impact.
- The Oxitec mosquito contains a “self limiting” gene, preventing environmental persistence.
- In Panama *Aedes aegypti* control did not facilitate invasion by other mosquito species over a 12 month period.
- Oxitec has solutions for other mosquitoes including *Aedes albopictus*.
- The technology is synergistic with future vaccine and therapeutic drug interventions.
Dear Governor Rick Scott;
We are aggressively pursuing a ZIKA solution. You might be interested with a video that we received from PhD Derric Nimmo. Derric is the senior man involved in developing the Aedes Aegypti male sterile mosquitos. He speaks on the video and it is very enlightening, (see the video) https://vimeo.com/163736285 and also see the attachment above.

Regards,
DAVID CHRISTOPHERSON
Vice President
CAS
Growing Global Health and Economic Threat from...

- *Aedes aegypti* is the primary vector for dengue, chikungunya and Zika
  - Dengue and chikungunya share some symptoms (joint pain, fever) - haemorrhagic fever can result in mortality
  - Zika has been shown to cause microcephaly in babies (CDC) and linked to Guillain-Barré syndrome
- These arboviruses are transmitted to humans by the bites of *Aedes* females
- *Aedes* mosquito control is difficult
  - Anthropophilic
  - Small and varied breeding sites
PAHO/WHO Issues an Alert: Zika Cases Have Now Been Reported in the U.S.

“In a move that signals growing concerns over the spread of Zika virus and its neurologic complications, the Pan American Health Organization (PAHO) issued an alert about the threat, urging countries in the region to be on the lookout for the disease and to watch for unusual patterns in newborns.”

Zika Distribution

Aedes aegypti presence in the US and the threat of Zika

Oxitec’s New Paradigm to Control *Aedes aegypti* Borne Diseases

- Proprietary male mosquitoes carry a self-limiting gene that causes late-acting lethality in the progeny after mating with wild-type females
- Approach targeted to reduce vector-mosquito population size
- Program is practical and cost-effective

Oxitec male mosquitoes are produced for release and mate with pest females

Offspring die before they can reproduce and transmit disease
How Oxitec’s Technology Works

Injecting genes into an insect egg

Self Limiting Gene
- Inherited - offspring do not survive to adulthood
- Repressed with an antidote during male insect production, allowing low cost multiplication
- After releases stopped, genes disappear from the gene pool and environment

Fluorescent Marker Gene
- Fluorescent protein detected by special light
- Identifies helpful mosquitoes vs. pest ones
- Allows estimation of pest population sizes
- Monitoring of pest population suppression
- Releases adjusted in nearly real time
- ‘Track and trace’ capability

© 2016 Intrexon Corp. All rights reserved.
Control program

Filter Colony (Oxitec UK)
- Hybrid strain
- High Quality control
- Fitness
- Genetic diversity
- Longevity

Eggs sent to trial site

Rearing cabin / factory at/near trial site

Monitoring

Release by vehicle /hand

Sex-sort pupae
Males for release
Oxitec Mosquito Trial Results Summary

Up to 90+% suppression of *Aedes aegypti* in selected field trials and projects

Cayman: Mosquito Research Control Unit
Brazil: University of São Paulo and Moscamed
Panama: The Gorgas Institute
Mosquito control and disease transmission

Data from Carvalho et al (2015) PLOS NTD
Key Benefits

**Efficiency**
- Targeted delivery: males are attracted to wild females whose offspring die at the larvae and pupal stage (consuming resources along the way)
- Insects and offspring contain a marker gene that is easy to monitor - “track and trace”
- Local deployment by local people

**Safety**
- Male-focused releases, only females bite
- Genetic change is not toxic or allergenic

**Environment**
- Species-specific pest control, no off-target effects
- Reduction of *Aedes* does not impact insects or other animals that may feed on *Aedes*
- Neither insects nor progeny persist over time in the environment
Regulatory process in the US

- Preliminary Finding of No Significant Impact by the FDA-CVM, CDC and EPA
- FDA led group evaluated many risks including:
  - Toxic or allergenic reactions by exposure to the introduced proteins
  - Increases in disease incidence or transmission of diseases vectored by the mosquitoes
  - Release of female Aedes aegypti mosquitoes
  - Impacts on non-target organisms, including animals and humans, and the wider ecosystem
  - Survival, spread and establishment in the environment including the potential for any vacated niche to be replaced with other vectors
  - Potential for the introduced Oxitec genes to be transferred to other organisms
  - The probability of adverse impacts associated with rearing of OX513A mosquitoes was found to be extremely unlikely
Endorsements of Oxitec technology

- Preliminary Finding of No Significant Impact by the FDA-CVM, CDC and EPA
- World Health Organization (WHO)
  - After their review of several new tools with the potential to reduce vector populations, the VCAG issued a positive recommendation in support of Oxitec’s self-limiting mosquito (OX513A)
- Pan American Health Organisation (PAHO)
  - offering to provide technical cooperation to support pilot studies of new mosquito control technologies, as part of its response to the Zika epidemic
- CTNBio approved OX513A for release anywhere in Brazil in 2014 and Anvisa grant special temporary registration in April 2016
Oxitec insects reviewed by independent experts

Regulatory precedents across all Oxitec GM insects

Current applications for outdoor release

- India
- Spain
- Caribbean
- USA

Import and contained trials approved

- Austria
- France
- Greece
- Guatemala
- Israel
- Singapore
- Thailand
- Vietnam
- UK

Oxitec *Aedes aegypti* received approval from CTNBio for nationwide releases in Brazil April 2014

Outdoor release approved

- Brazil
- Cayman
- Malaysia
- Mexico
- USA
- Panama
Summary of surveys in the Keys for support of release of GM mosquitoes

- K.C. Ernst survey (n=195)
- Michael Cobb survey (Key West, n=202)
- Michael Cobb survey (All Keys, n=610)

Support
Neutral
Opposed

http://keymosquito.org/modified-mosquito-surveys/

Summary

- Oxitec has had field success suppressing the pest populations of *Aedes aegypti* in selected field trials in urban areas by 90+%.
- CTNBio in Brazil have approved the Oxitec mosquito (OX513A) from an efficacy and environmental safety perspective for commercial application.
- FDA-CVM, CDC and EPA issued preliminary Finding of No Significant Impact.
- The Oxitec mosquito contains a “self limiting” gene, preventing environmental persistence.
- In Panama *Aedes aegypti* control did not facilitate invasion by other mosquito species over a 12 month period.
- Oxitec has solutions for other mosquitoes including *Aedes albopictus*.
- The technology is synergistic with future vaccine and therapeutic drug interventions.
From: Paul Phinney <Phineas7@comcast.net>

County: Broward

Zip Code: 33305

Phone Number:


5/25/16

Re: ZIKA VIRUS EMERGENCY CRISIS

Dear Governor Scott:

As a Ft. Lauderdale resident, I am shocked and dismayed that U.S. House and Senate legislators apparently committed reprehensible gross negligence by taking a cavalier ill-timed recess instead of passing EMERGENCY FEMA FUNDING legislation to combat the current Zika virus worldwide epidemic that has already invaded the U.S. in Puerto Rico and several states.


I sent an urgent letter by fax on 5/19/16 (see below) to House Speaker Paul Ryan about the extreme urgency for the House and Senate to act on the Zika emergency before going on recess and before June 2016. Apparently, this fell on deaf ears.

May 19, 2016

The Honorable Paul Ryan
Office of the Speaker
H-232 The Capital
Washington, DC 20515

Re: ZIKA VIRUS CRISIS

Dear Mr. Speaker:

The undersigned recently reviewed the Zika virus article appearing in the May 2016 issue of Time magazine. This article serves as a superb and succinct executive summary of the current Zika virus crisis, with pertinent facts thereto and currently envisioned solutions therefor. This should be assigned reading for all legislative members of the House and the Senate. With summer approaching, time is of the essence for the federal government to quickly act before June 2016 to provide sufficient emergency funding for federal and state programs to combat this exigent Zika crisis. The Zika virus is spread primarily by the Aedes aegypti mosquito species in summertime.

PLEASE PASS APPROPRIATE FUNDING LEGISLATION NOW BEFORE CONGRESS’ RECESS!

Bullet points on the precariously imminent Zika virus crisis economic devastation include:
Mosquitoes are the most dangerous animals posing an existential threat to Homo Sapiens.
The Aedes aegypti mosquito species population should be locally decimated (not made extinct). Mother Nature would not approve of the extermination of an entire species (what comes next?). Genetically modified male Aedes mosquitoes should be deployed immediately (available now). $7 is the estimated cost for each individual U.S. citizen by deploying GMO male mosquitoes. The copulating GMO male mosquitoes would result in localized deaths of newborn offspring. According to the Time magazine article, developing a Zika virus cure could take 5-10 years. U.S. infants born with Zika-microcephaly => catastrophic health care costs plus labor loss. Given such a catastrophic scenario, the U.S. and worldwide economies could take a nosedive. Infected mosquito eggs can survive without water for at least one year.

A 2-pronged approach: deploy GMO male mosquitoes now … start developing Zika cure.

Respectfully submitted,

Paul Phinney

VIA FACSIMILE: 202-225-2012 Office of the Speaker

P.S. An Ebola cure already exists, but it has not been fully approved in the U.S. or elsewhere.

Sincerely,

Paul Phinney

cc: Sun Sentinel
Washington Post ~ national@washpost.com
From: Paul Phinney <Phineas7@comcast.net>

County: Broward

Zip Code: 33305

Phone Number:


5/25/16

Re: ZIKA VIRUS EMERGENCY CRISIS

Dear Governor Scott:

As a Ft. Lauderdale resident, I am shocked and dismayed that U.S. House and Senate legislators apparently committed reprehensible gross negligence by taking a cavalier ill-timed recess instead of passing EMERGENCY FEMA FUNDING legislation to combat the current Zika virus worldwide epidemic that has already invaded the U.S. in Puerto Rico and several states.


I sent an urgent letter by fax on 5/19/16 (see below) to House Speaker Paul Ryan about the extreme urgency for the House and Senate to act on the Zika emergency before going on recess and before June 2016. Apparently, this fell on deaf ears.

May 19, 2016

The Honorable Paul Ryan
Office of the Speaker
H-232 The Capital
Washington, DC 20515

Re: ZIKA VIRUS CRISIS

Dear Mr. Speaker:

The undersigned recently reviewed the Zika virus article appearing in the May 2016 issue of Time magazine. This article serves as a superb and succinct executive summary of the current Zika virus crisis, with pertinent facts thereto and currently envisioned solutions therefor. This should be assigned reading for all legislative members of the House and the Senate. With summer approaching, time is of the essence for the federal government to quickly act before June 2016 to provide sufficient emergency funding for federal and state programs to combat this exigent Zika crisis. The Zika virus is spread primarily by the Aedes aegypti mosquito species in summertime.

PLEASE PASS APPROPRIATE FUNDING LEGISLATION NOW BEFORE CONGRESS’ RECESS!

Bullet points on the precariously imminent Zika virus crisis economic devastation include: Mosquitoes are the most dangerous animals posing an existential threat to Homo Sapiens.
The Aedes aegypti mosquito species population should be locally decimated (not made extinct). Mother Nature would not approve of the extermination of an entire species (what comes next?). Genetically modified male Aedes mosquitoes should be deployed immediately (available now). $7 is the estimated cost for each individual U.S. citizen by deploying GMO male mosquitoes. The copulating GMO male mosquitoes would result in localized deaths of newborn offspring. According to the Time magazine article, developing a Zika virus cure could take 5-10 years. U.S. infants born with Zika-microcephaly => catastrophic health care costs plus labor loss. Given such a catastrophic scenario, the U.S. and worldwide economies could take a nosedive. Infected mosquito eggs can survive without water for at least one year. A 2-pronged approach: deploy GMO male mosquitoes now … start developing Zika cure.

Respectfully submitted,

Paul Phinney

VIA FACSIMILE: 202-225-2012 Office of the Speaker

P.S. An Ebola cure already exists, but it has not been fully approved in the U.S. or elsewhere.

Sincerely,

Paul Phinney

cc: Sun Sentinel
Washington Post ~ national@washpost.com
Governor Scott;

I am pleased to inform you that I was able to persuade Dr. Derric Nimmo, product Development Manager of OXITEC Ltd. in the U.K. to join me in a business dinner Monday evening May the 16th, Dr. Derric is the project manager for the sterile male trials going on in the Keys and that are proposed in the Cayman Islands. I know this is short notice, but he’s an extremely busy man. Please confirm your attendance or someone representing you so I can inform Dr. Nimmo who the attendees will be.

Best regards,
DAVID CHRISTOPHERSON
Vice President
Phone: 305-595-6738 / cell: 305-989-3444

Governor Scott;

URGENT URGENT URGENT

I have just been informed from our Barbados office that Mr. Roland Bovell – 49-years old a friend of one of the employees is in Queen Elizabeth hospital where he has been induced in to a coma. He has been diagnosed with ZIKA and Guillain-Barre Syndrome – see attached. It is in the opinion of the local medical personnel that he was infected with the ZIKA virus.

How many people are going to die before we take action? Our proposal was sent to you on April 13, 2016 and we have not gotten a response. Please help us to save multiple people in the Caribbean.

Please see the following website: www.cdc.gov/zika/about/gbs-qa.html

Sincerely yours,
DAVID CHRISTOPHERSON
From: Dr. Steve wise <steven.wise@ssa.gov>

County: Duval

Zip Code: 32266

Phone Number:

Message Body: I just wanted to take a moment to say I'm 100% in favor of using GMO mosquitos by Oxitec to get rid of the Zika carrying AE mosquitos here in Florida. They are by far the most ecologically friendly methodology available. Sprays will kill everything and effect butterflies, fish, and everything else - and still not be nearly as effective. Best,

Steve
From: Steve Wise <drwise@wisewaysinc.com>

County: Duval

Zip Code: 32266

Phone Number: 9049940997

Message Body: Please take immediate action to stop this deadly and dangerous disease from coming to Florida. The Oxitec GMO mosquito has been shown to effective and the government red tape slowing its use will cause death and destruction. Immediate action is needed. If the approval method is too onerous for the obvious GMO solution, other avenues must be started quickly.
From: Steve Wise <drwise@wisewaysinc.com>
County: Duval
Zip Code: 32266
Phone Number: 9049940997

Message Body: Please take immediate action to stop this deadly and dangerous disease from coming to Florida. The Oxitec GMO mosquito has been shown to effective and the government red tape slowing its use will cause death and destruction. Immediate action is needed. If the approval method is too onerous for the obvious GMO solution, other avenues must be started quickly.
Governor Scott;

I am pleased to inform you that I was able to persuade Dr. Derric Nimmo, product Development Manager of OXITEC Ltd. in the U.K. to join me in a business dinner Monday evening May the 16th, Dr. Derric is the project manager for the sterile male trials going on in the Keys and that are proposed in the Cayman Islands. I know this is short notice, but he’s an extremely busy man. Please confirm your attendance or someone representing you so I can inform Dr. Nimmo who the attendees will be.

Best regards,

DAVID CHRISTOPHERSON
Vice President
Phone: 305-595-6738 / cell: 305-989-3444

Governor Scott;

**URGENT URGENT URGENT**

I have just been informed from our Barbados office that Mr. Roland Bovell – 49-years old a friend of one of the employees is in Queen Elizabeth hospital where he has been induced in to a coma. He has been diagnosed with ZIKA and Guillain-Barre Syndrome – see attached. It is in the opinion of the local medical personnel that he was infected with the ZIKA virus.

How many people are going to die before we take action? Our proposal was sent to you on April 13, 2016 and we have not gotten a response. Please help us to save multiple people in the Caribbean.


Sincerely yours,

DAVID CHRISTOPHERSON
Very disappointed that you didn't mention the only currently effective solution, the Oxitec GM mosquito. You'll spend a ridiculous amount of money on healthcare without it, and insecticide is relatively ineffective. Can't support your thinking here.

Dr. Steve Wise
From: Steve Wise <steve.wise@healthvaluedirect.com>
County: Duval
Zip Code: 32266
Phone Number: (904) 994-0997

Message Body: Very disappointed that you didn't mention the only currently effective solution, the Oxitec GM mosquito. You'll spend a ridiculous amount of money on healthcare without it, and insecticide is relatively ineffective. Can't support your thinking here.

Dr. Steve Wise