

WHITE PAPER:

THE CURE IS WORSE THAN THE DISEASE

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THE CURE IS WORSE THAN THE DISEASE

EXECUTIVE SUMMARY

Pesticides have a long history of detrimental, unintended consequences to human health, wildlife and the environment. Pesticide use often kills natural predators and makes us more dependent on pesticides. Pesticides are marketed widely before chronic health effects are properly assessed. It often takes decades before regulators recognize health and environmental damage. Testing and regulation of pesticides are woefully inadequate and slow. There is ample documentation in the scientific literature that shows that pesticides can be harmful even at low levels, especially for sensitive populations such as children. Surveillance, monitoring and research on low-level exposures are needed. Significant data are being excluded in the current approaches to controlling mosquito borne diseases and control for nuisance reasons. Pesticide risk assessments are based on only a tiny part of the picture, and exclude consideration of critical data-gaps. The threat of mosquito-borne disease is often exaggerated. The public is often misled about the safety of pesticides.

RECOMMENDATIONS

A serious and thoughtful Integrated Pest Management program (IPM) should be implemented for mosquito control. A true IPM program emphasizes that least-toxic alternatives be used at every opportunity. IPM makes special emphasis on a prevention component that includes an expanded public education campaign promoting awareness and community participation. This is especially important because many people breed mosquitoes unknowingly on their own properties. IPM also includes enhancement and preservation of natural predators such as dragonflies and fish. Instead of toxic pesticides, greater reliance on use of larvicides such as BTI (*Bacillus Thurengiensis* Israelensis) in temporary bodies of standing water is advisable. BTI and other larvicides are not recommended for ponds and lakes where there are predators such as fish and dragonflies. The spraying of pesticides should be done only in very limited and specific situations as a last resort, when stationary sentinel animals are found infected with arthropod-borne diseases. In these cases only a very limited amount of spraying should occur in the immediate area around the outbreak. In those instances, only least toxic pesticides that have the least impact on humans, wildlife and the environment should be used. The public should be told of the potential risks of pesticides, and notified when spraying is to occur.

Nearly 100 pesticides have already been banned or severely restricted by the Environmental Protection Agency (EPA) because of serious health and environmental damage. (1) Many dangerous pesticides are still on the market. The pesticide chosen for local aerial spraying for mosquito control of West Nile Virus (WNV) is on a list of highly toxic pesticides currently being re-evaluated by the EPA. This process will take a long time. Considering that the Centers for Disease Control and Prevention (CDC) estimated that only one-in-a-million mosquitoes carries WNV, and that all mosquito borne-illnesses are extremely rare in this country-it would be wise to severely restrict the use of toxic pesticides.

This past summer, North Florida experienced an onslaught of heavy rains and a migration of birds infected with West Nile Virus (WNV). Then came a Medical Alert from the State of Florida Health Department and news from the Department of Agriculture and Mosquito Control that they would be spraying pesticides by plane and by truck. It was difficult not to see the irony --that pesticides would be sprayed over hundreds of square miles -- in the name of public health.

Citizens aware of chronic health problems caused by pesticides tried to understand why most residents are content with the spraying. The answers now seem obvious. The chemical/pharmaceutical industry spends billions of dollars on advertising promoting the notion that its products are "safe," and the public is rarely exposed to the concept that pesticides can cause a wide array of environmental and health problems.

Scientific data indicate clear links between many pesticides and chronic illness, immune dysfunction, (1a) (2) developmental, learning and behavioral disabilities, and birth defects and brain damage. (3) (4) Uninformed of these negatives, and exposed to exaggeration about the threat of WNV, (5) (6) the public actually asks to be sprayed.

Most people believe that pesticides have been properly tested for human health impacts. Actually, nothing could be further from the truth. Pesticides are not tested and regulated like drugs, and it is the chemical/pharmaceutical pesticide manufacturers that test pesticides and conduct their risk assessments - not the Environmental Protection Agency. (6b)

For the more than 600 older pesticides currently on the market, only very limited information was required prior to their registration. Testing requirements were inadequate and focused mainly on acute effects such as how much of the pesticide it takes to kill a rat. Most importantly, almost no testing was done for chronic health effects such as neurological damage. Despite critical data-gaps, pesticide companies went forward and conducted risk assessments based on inadequate information -- and the pesticides were widely distributed.

The new federal pesticide regulations require pesticides to be more thoroughly tested prior to marketing. The older ones will be required to undergo re-registration and new testing, but of these 600 plus older pesticides, only six have completed this new process. Despite these problems, the public is often given false assurances of safety (7)

Once on the market, it often takes decades for unintended consequence incidents to be identified and evaluated, and for scientific data to be made public. For decades the EPA and Congress have received reports that neurotoxins such as pesticides can cause brain and central nervous system

damage. (8) Children are of special concern because organophosphates (OPs), the most widely used class of pesticides, have been shown to damage the developing brain. (9) EPA says concerns raised by this information are "supported by other literature." (10) Despite this knowledge, it was 1999 before the EPA began requiring scientific studies relating to pesticide effects on the brain. The concern over this class of OP pesticides has been mounting and as early as 1998 the EPA's Office of Pesticide Programs warned industry leaders "to start thinking about alternative registrations" to OPs. Soon afterwards Novartis announced it would "terminate production of OPs." (11) Other companies like those that manufacture the OP pesticides Dursban and Diazinon, quietly agreed to severely restrict or phase out these products so they will not have to produce newly required brain studies. (12) (13) But not all companies did this.

The EPA's regulatory machinery moves very slowly and the chemical/pharmaceutical industry that produces pesticides, is very powerful. Despite mounting evidence of their harmful effects, it took the EPA decades to finally achieve restriction of Dursban and Diazinon under the Food Quality Protection Act. The Act seeks to prevent damage to children's health from pesticide exposure. Dursban and Diazinon are from the same class of pesticides as Dibrom --the pesticide sprayed by plane in North Florida for mosquito control.

Dibrom, also known as Naled, it is also under EPA scrutiny. There is no way for the public to know when its re-assessment will be completed. EPA just disclosed the delay of its interim report and says that only the study protocol for the required brain study has been submitted so far. (14) According the federal agency watchdog, the U.S. General Accounting Office (GAO), the public may have to wait a long time because action on pesticide products is often delayed for decades. (15)

There is much that the scientific community does not know about the long term health effects of the synthetic chemicals that are being found in the public's blood --a body-burden that we all share, (16) (17) but there is ample, scientifically valid data that shows that pesticides can be damaging to human health and the environment. This makes it especially troubling to repeatedly hear the word "safe" when they are described. Federal law prohibits manufacturers and distributors from directly or even indirectly suggesting that pesticides are "safe."(18) (19) Claims may not differ from those found on the product label. Nowhere on the Dibrom label does it say it is safe, even if used according to its instructions. (19a)

Florida health and mosquito control officials could benefit from the experience of New York where health officials have been dealing with WNV for three years. There officials initially sprayed OP pesticides after the outbreak, but by the end of the mosquito season there came a surprise twist: The New York Department of Health declared that more people got sick from pesticide exposure from mosquito control than from the WNV. (20)

By the end of the second year the WNV rhetoric had cooled down all along the eastern seaboard. Dennis McBride, director of the North Carolina Health Department dared to call WNV "a mild disease". (21) The Maine Environmental Policy Institute came out with a report entitled "OVERKILL" that criticized the use of pesticides for combating WNV, followed by appended versions of this same document from both Connecticut and Massachusetts. (22) It was time for some balance and perspective. Some people had begun to notice that in 1999, the first and worst year of New York's WNV epidemic, that only 7 people died from WNV while 2,474 people died

from the flu. (23)

New York officials dramatically changed course by stopping the use of OP pesticides. They also decided to greatly expand the use of bacterial larvicides like BTI (*Bacillus Thurengiensis* *Israelensis*) that has a much higher safety threshold for humans and wildlife. The N.Y. Department of Health also greatly increased public education on how individuals can take personal responsibility for control and avoidance of mosquitoes by use of repellents, proper clothing and by eliminating breeding sites around properties. As a last resort, officials will only spray Pyrethroid pesticides in a limited area immediately around WNV outbreaks. (24)

By spraying we may not see as many mosquitoes, but there is a price to pay both in terms of human health and the loss of countless other creatures. Florida does not have an effective pesticide illness or pesticide death-monitoring program for humans or other non-target species. Data being collected are primarily limited to acute exposures of migrant farm workers, and evident pesticide suicides. No attention is given to low-level exposure effects. If no one is looking for negative effects, how can we make wise decisions in the future? Florida does not have anyone like New York state wildlife pathologist Dr. Ward Stone. When he tested dead birds that were turned into his lab, he found that far more of them had died from pesticide poisoning than from WNV. (25)

And humans may become more at risk for WNV when exposed to pesticides. Many studies have shown that pesticides compromise the immune system. (26) (27) Given that we need an intact immune system to combat all illnesses including WNV, the logic to use pesticides seems somehow perverse. New York Health Department data show that most of the people who died of WNV had pre-existing weak immune systems because they had diseases such as AIDS and cancer. (28) Random blood samplings in New York showed that most healthy persons who tested positive for WNV antibodies were surprised because they either had mild symptoms or no symptoms at all. (29)

Research shows that WNV does not become life threatening until it crosses the brain's protective shield. The spraying of pesticides may actually increase the probability that WNV develops into a life-threatening disease because pesticides and other toxic chemicals can breach the blood-brain barrier and may leave us more susceptible to viruses. (30) (31)

Humans sometimes forget that we are a part of the ecology and dependent on it in countless ways. Scientists claim that if we leave nature alone, it will take care of 95% of the mosquitoes for us. (32) Each time we spray toxic chemicals the balance of nature gets disrupted and many non-target organisms are sickened and killed, including one of our best allies - the dragonfly. But when we kill dragonflies with pesticides their populations are slow to recover. A dragonfly takes from 1 to 3 years to pupate. It only takes from 3 days to 3 weeks for mosquitoes to reach the adult state. Even the dragonfly nymphs eat mosquito larvae and here in dragonfly country, one hundred dragonflies can eat 1.5 million mosquitoes a month!

(1) United States Environmental Protection Agency (USEPA). EPA List of Pesticides Banned and Severely Restricted in the U.S. found at the following EPA web sites:

<http://www.epa.gov/oppfead1/international/piclist.htm>

<http://www.epa.gov/oppfead1/international/us-unlist.htm>

Newly Restricted:

<http://www.epa.gov/oppmsd1/RestProd/rup6mols.htm>

Voluntarily withdrawn:

<http://pmep.cce.cornell.edu/profiles/cancel/vol-canc.html>

<http://pmep.cce.cornell.edu/profiles/cancel/vol-canc-8-98.html>

(1a) Immune parameters in biological monitoring of pesticide exposure: current knowledge and perspectives; Colosio C., Corsini El, Barcellini W., Maroni M.; International Centre for Pesticide Safety, Milan, Italy. *Toxicol Lett* 1999 - Sep 5:108 (2-3):285-95

(2) Environmental Immunotoxicology. Environmental Medicine, S.M. Brooks, M. Gochfeld, J. Herzstein, R.J. Jackson, and M.B. Schenker, Editors; Mosby-Year Book, Inc., St. Louis, Missouri, pages 139-155, 76 references, 1995

(3) In Harm's Way: Toxic Threats to Child Development; Ted Schettler MD, MPH, Jill Stein MD, Fay Reich PsyD, Maria Valenti, David Wallinga MD; A report by Greater Boston Physicians for Social Responsibility, May 2000

(4) The Washington Post. Chemicals and the Developing Brain, Judy Mann, Jun 14, 2000
<http://www.washingtonpost.com/ac2/wp-dyn?pagename=article&node=&contentId=A54472-2000Jun14>

(5) Public statement by Lisa A. Conti, DVM, MPH, state public health veterinarian, Florida Department of Health at the Jefferson County Courthouse public meeting on July 16, 2001. When asked what percentage of persons die from West Nile Virus infection, Dr. Conti said "an average of 15%."

(6) Public statement made by Dr. Steven Wiersma, M.D., Florida Department of Health epidemiologist on local public radio program Family Forum Live on August 22, 2001. Dr. Wiersma stated that the percentage of persons who die from West Nile Virus infection ranges from 12-15%.

(6a) Life's Delicate Balance: Causes and Prevention of Breast Cancer. Dr. Janette D. Sherman, MD. Page 204, paragraph 5; Taylor and Francis Publishers, 1999

(7) U.S. General Accounting Office. Non-Agricultural Pesticides, Risks and Regulation; April GAO/RCED-86-97

(8) Neurotoxins: At Home and in the Workplace; Report to the Committee on Science and Technology, U.S. House of Representatives, June 1986.

(9) Mehl, Anna et al. The effect of trichlorfon and other organophosphates on prenatal brain development in the guinea pig. *Neurochemical Research*, 19(5). 569-574, 1994.

(10) U.S. Environmental Protection Agency, Office of Pesticide Programs, Health Effects Division (7509C); Report entitled "Human Health Risk Assessment - Dichlorvos (DDVP); page. 3, paragraph 1, line 6.

(11) Alabama Pesticide Information State Headquarters, Extension Pest Management Newsletter. Vol.2, No.4, 19 June 98 "EPA Officials Tells (sic) Industry to Look for OP Alternatives" and "Novartis to Terminate Production of OPs"
<http://www.aces.edu/department/ent/newsletters/ns.jun98.html>

(12) ENVIRONMENTAL PROTECTION AGENCY (EPA) Federal Register: December 6, 2000 Chlorpyrifos (Dursban, Lorsban); Cancellation Order (Volume 65, Number 235)] [Notices] Page 76233-76240 from the Federal Register online GPO Access [wais.access.gpo.gov] [DOCID:fr06de00-63] [OPP-34203F; FRL-6758-2]
<http://www.epa.gov/fedrgstr/EPA-PEST/2000/December/Day-06/p30917.htm>

(13) ENVIRONMENTAL PROTECTION AGENCY (EPA) Federal Register: May 30, 2001 Diazinon; Receipt of Requests for Amendments and Cancellations (Volume 66, Number 104); [Notices] [Page 29310-29313] From the Federal Register Online via GPO Access [wais.access.gpo.gov] [DOCID:fr30my01-50] [OPP-34225E; FRL-6785-2]
<http://www.epa.gov/fedrgstr/EPA-PEST/2001/May/Day-30/p13514.htm>

(14) Dennis Utterback, EPA Chemical review Manager; Special Review and Reregistration Division; Office of Pesticide Programs in a personal e-mail. Contact: Dennis Utterback: (703) 305-0076 or FAX: (703) 308 8041 or
Utterback/DC/USEPA/US@EPA and utterback.dennis@epamail.gov

(15) U.S. General Accounting Office. 1986. Pesticides: EPA's formidable task to assess and regulate their risks. Washington, D.C. (April.)

(16) Centers for Disease Control National Report on Human Exposure to Environmental Chemicals; 3.21.01 <http://www.cdc.gov/nceh/dls/report/FAQs/default.htm#whyimportant>
pgs, 1,2,3, 6

(17) Science News, September 24, 1983"Pesticides: The Human Body Burden", pg. 199

(18) Federal Insecticide, Fungicide and Rodenticide Act, 7 USC '136j, federal pesticide regulations at 40 C.F.R. 162.10(a)(5)(ix)

(19) U.S. General Accounting Office, Non-Agricultural Pesticides, Chap. 3, "The General Public Receives Limited and Misleading Information on Pesticide Hazards, pg.35, GAO/RCED-86-97

(20) Albany Times Union, "Feeling the Sting of West Nile Spraying", Friday, June 15, 2001; also available via world wide web at:
<http://www.timesunion.com/AspStories/story.asp?storyKey=60330&BCCode=HOME&newsdate=6/15/2001>

(21) North Carolina Department of Health and Human Services Press Release; Oct 20, 2000
<http://www.dhhs.state.nc.us/pressrel/10-20-00.htm>

(22) OVERKILL: Using pesticides to control West Nile Virus mosquitoes in Maine

may do more harm than good Prepared by the Maine Environmental Policy Institute
May 2001. This report was also adapted and re-written to fit the states of Connecticut and
Massachusetts. <http://www.meepi.org/wnv/wnv.htm>

(23) New York City Department of Health Office of Public Affairs Press Release, Friday, Dec/
29, 2000 (212) 788-5290 entitled, "FLU SEASON PICKING UP IN NEW YORK CITY; NEW
YORKERS 50 AND OVER ADVISED TO GET A FLU SHOT
<http://www.ci.nyc.ny.us/html/doh/html/public/press00/p1321229.html>

(24) State of New York Department of Health: " Health Officials Unveil 2001 West Nile Virus
Response Plan: Education, Prevention Remain Key Components of Fight Against Mosquito-
borne Disease" <http://www.health.state.ny.us/nysdoh/commish/2001/wnilerelease.htm>

(25) THE RECORD - TROY, NY., dated June 3, 2001 and entitled: "TOXINS KILLING
BIRDS" by Michael Gormley -- Associated Press.

(26) The Immunotoxicity of Selected Environmental Chemicals, Pesticides and Heavy Metals.
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(27) The Effects of Pesticides on Human Health, S.R. Baker and C.F. Wilkinson, Editors;
Princeton, Princeton Scientific Publishing Co., Inc., pages 262-295, 107 references, 1990

(28) New York City Department of Health information newsletter on West Nile Virus; page 2,
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(29) The Lancet. Epidemic West Nile encephalitis, New York, 1999: results of a household-based
seroepidemiological survey Farzad Mostashari, Michel L Bunning, Paul T Kitsutani, Daniel A
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Medical Entomology Laboratory, IFAS-University of Florida, Vero Beach, April 1991, page 6.

