

STATE OF HAWAII
DEPARTMENT OF HEALTH
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**Testimony COMMENTING on and with Reservations S.B. 801
RELATING TO THE HEALTH IMPACT OF PESTICIDES**

SENATOR JOSH GREEN, CHAIR
SENATE COMMITTEE ON HEALTH

SENATOR MIKE GABBARD, CHAIR
SENATE COMMITTEE ON ENERGY AND ENVIRONMENT

Hearing Date: **February 12, 2015**
3:35 p.m.

Room Number: 414

1 **Fiscal Implications:** Unknown

2 **Department Testimony:** S.B. 801 seeks to amend H.R.S. Chapter 321. The Hawaii Department
3 of Health (DOH) would like to offer comments and reservations regarding this proposed
4 measure.

5 S.B. 801 seeks to modify Chapter 321 Hawaii Revised Statutes to establish requirements for
6 mandatory advance public notification of restricted use pesticide applications and annual
7 restricted use pesticide use disclosures to DOH and the Department of Agriculture (DOA). The
8 requirements apply to individuals or entities using unspecified quantities of restricted use
9 pesticides. DOH supports science-based public health actions to protect the health of our
10 children. In this regard over the past two years, DOH has prepared a report on atrazine
11 occurrence in Hawaii for the Legislature, conducted stream sampling across the State for
12 hundreds of currently used pesticides and coordinated a cancer cluster evaluation for Kauai with
13 the University of Hawaii. DOH is also continuing to build laboratory capacity for pesticides so
14 that more environmental sampling can be done to evaluate offsite movement of pesticides in air,
15 drinking water, our streams and coastlines. We have conducted these efforts in close
16 collaboration with state agencies, such as DOA, federal agencies, and county governments.

1 DOH supports the disclosure and notification approach taken by the Kauai Agricultural Good
2 Neighbor Program, a voluntary pesticide-use disclosure program on Kauai that provides monthly
3 on-line reports of restricted pesticide use through the DOA website, a 100 foot buffer zone
4 between pesticide application and sensitive communities and pre-application notification to
5 neighboring property owners upon request. S.B. 801 asks DOH to adopt rules for the
6 administration of a program mandating disclosure and notification requirements for restricted use
7 pesticides, and further requires that DOH and DOA post annual public reports on both
8 department websites.

9 DOH does not regulate use and application of pesticides, nor possess the necessary agricultural
10 and pest management expertise to establish, implement and enforce mandatory pesticide use
11 disclosure requirements. In addition, DOH does not have existing positions or infrastructure to
12 establish a pesticide use reporting and public disclosure program. Establishing these functions at
13 DOH would be duplicative, requires establishment of a new program within the Department and
14 could cause confusion for pesticide applicators that have other regulatory reporting requirements
15 to DOA.

16 Mandatory pesticide use reporting and public disclosure are most efficiently implemented by
17 DOA Pesticides Branch which regulates the use, sale, and distribution of pesticides in the State
18 of Hawaii, and has expert staff providing oversight, applicator education, and enforcement of
19 proper pesticide use practices. In addition, DOA already provides monthly on line public
20 disclosure of voluntary pesticide use reporting under the Kauai Good Neighbor Program.

21 In summary, while DOH recognizes the public interest in disclosure and notification of pesticide
22 uses in local communities, such functions should be carried out at DOA.

23 Thank you for the opportunity to provide comments on this important measure.

DAVID Y. IGE
Governor

SHAN S. TSUTSUI
Lt. Governor



SCOTT E. ENRIGHT
Chairperson, Board of Agriculture

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**TESTIMONY OF SCOTT E. ENRIGHT
CHAIRPERSON, BOARD OF AGRICULTURE**

**BEFORE THE SENATE COMMITTEES ON HEALTH AND ENERGY AND
ENVIRONMENT**

Thursday, February 12, 2015
3:35 P.M.
CONFERENCE ROOM 414

**SENATE BILL NO. 801
RELATING TO THE HEALTH IMPACTS OF PESTICIDES**

Chairpersons Green and Gabbard and Members of the Committees:

Thank for the opportunity to testify on Senate Bill No. 801. This bill establishes notice and reporting requirements for any entity or person that uses restricted use pesticides under certain conditions. The Department of Agriculture (HDOA or Department) has reservations about SB 801.

We feel that it is the purview of the HDOA to regulate the use of pesticides under the Hawaii Pesticides Law, Chapter 149-A and not the Department of Health.

The requirement for disclosure of pertinent pesticide application by any entity or persons that annually uses or purchases in excess of a specified amount of restricted use pesticides (RUPs) would require the addition of personnel to the department to handle the influx of use reporting for RUP pesticides. The Department is in the process of posting RUP sales records and this activity has already put a strain on current resources.

The requirement for posting of warning signs and pre-notification requirements prior to a spray application is problematic. Many of the recommendations to conform to the federal Worker Protection Standard (WPS) are misconstrued.

The bill's requirement for prior public notification of outdoor pesticide applications of any restricted use pesticides (RUPs) exceed EPA label requirements without any scientific basis.

In summary, the Department would like to point out that language in this bill appears to target a segment of the farming community. The Department supports all agricultural activity that is being conducted in accordance, with federal, state and county regulations.

Thank you for the opportunity to present testimony.



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February 11, 2015

TESTIMONY OF GARY L. HOOSER
COUNCILMEMBER, KAUAI COUNTY COUNCIL
ON
SB 801, RELATING TO THE HEALTH IMPACT OF PESTICIDES
Committee on Health
Committee on Energy and Environment
Thursday, February 12, 2015
3:35 p.m.
Conference Room 414

Dear Chair Green, Chair Gabbard, and Committee Members:

My name is Gary L. Hooser and I presently serve on the Kauai County Council. I am here today testifying as an individual Councilmember in strong support of SB 801 Relating to the Health Impact of Pesticides.

SB 801 requires the Department of Health to establish notice and reporting requirements for all persons or entities who use Restricted Use Pesticides under certain conditions.

The threshold amount I would suggest would be 5 lbs. or 15 gallons of any Restricted Use Pesticide purchased or used.

I applaud this Senate Joint Committee and the introducers of the Bill for recognizing the importance of this issue.

There is no question in terms of scientific studies that pesticides in general, but especially Restricted Use Pesticides, have the potential to cause great harm to health and the environment.

Our research on Kauai shows that while a handful of very large companies use large amounts of Restricted Use Pesticides on a regular basis, most regular farmers use very little – focusing instead on the application of only general use pesticides.

Chair Green, Chair Gabbard, and Committee Members
Re: SB 801, Relating to the Health Impact of Pesticides
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On Kaua'i we found these companies utilizing 22 different types of Restricted Use Pesticides, many of which are banned in other countries. We also discovered these same companies experimenting with pesticides and using them in amounts that far exceeded national norms.

Please see the attached file entitled "9 Most Frequent Misstatements Made By Chemical Companies In Hawaii." The electronic version contains links to the source documents and can be found at <http://tinyurl.com/9Misstatements-02-04-15>.

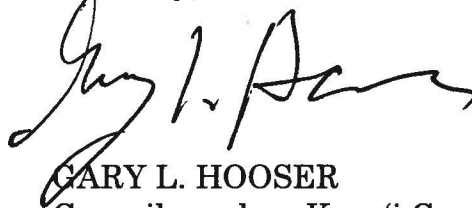
It is without question that pesticides are harmful and they should not be applied in sensitive areas adjacent to homes, hospitals, schools, and waterways.

Full disclosure is an essential element for regulating Restricted Use Pesticides, as without full disclosure the public is not able to avoid the areas being treated and they do not know when to shut their windows. When they seek medical attention for exposure to pesticide drift, the attending physician has no idea as to the impacts of the exposure as they do not know what chemicals were applied or when.

It is also without question that we as a community cannot determine the extent or degree of risk without further studies. Those studies are not possible without full and public disclosure of the types, amounts, and location in which these chemicals are applied.

Thus, the need for full disclosure is clear and I urge this Senate Joint Committee to vote in full support of this measure. Should you have any questions, please feel free to contact me or Council Services Staff at (808) 241-4188.

Sincerely,



GARY L. HOOSER
Councilmember, Kaua'i County Council

AB:mn
Attachment

9 MOST FREQUENT MISSTATEMENTS MADE BY CHEMICAL COMPANIES IN HAWAII

1) CHEMICAL COMPANIES: "All of these chemicals and pesticides have been tested and found to be safe when used according to the label."

THE TRUTH:

- No one has ever tested the combined impacts of these chemicals over time in the communities in which they are being used.
- Many of the chemicals (including Atrazine; Paraquat, also known as Gramoxone; and Chlorpyrifos, also known as Lorsban) that are regularly used near Hawai'i homes, schools, and hospitals are banned in other countries.
- Atrazine, manufactured by Syngenta, has been banned in the European Union since October 2003. See also Paraquat bans and Chlorpyrifos bans.
- The American Academy of Pediatrics' "Pesticide Exposure in Children" (2012) specifically recommends disclosure and buffer zones, and offers strong cautions about pesticides and children.
- The American Cancer Society's "Increased Cancer Burden Among Pesticide Applicators and Others Due to Pesticide Exposure" (2013) states definitively that people who live and work around agricultural areas that have high pesticide use suffer a greater incidence of certain cancers and other medical problems.
- The University of California at Davis recently released a report, "Neurodevelopmental Disorders and Prenatal Residential Proximity to Agricultural Pesticides: The CHARGE Study" (2014), linking the long term use of Glyphosate to the increased incidence of autism.
- Restricted Use Pesticide (RUP) labels forbid their use in conditions which allow the pesticides to drift onto neighboring properties. Nevertheless, there are numerous incidents of drift occurring in Hawai'i, with no legal consequences for the companies. The attached links of two modest studies on Kaua'i indicate that while the quantities are small, Restricted Use Pesticides are drifting into neighborhood schools and into adjacent streams:
 - "Air sampling and analysis for pesticide residues and odorous chemicals in and around Waimea, Kaua'i" (March 15, 2013)
 - "2013-14 State Wide Pesticide Sampling Pilot Project Water Quality Findings" (May 2014)

2) CHEMICAL COMPANIES: "We use less pesticides, not more."

THE TRUTH:

Despite the fact that no other farmer in Hawai'i uses anything close to what these chemical companies use, the chemical companies attempt to compare apples to oranges:

- The chemical companies compare themselves to conventional corn growers (who harvest one (1) crop growing cycle per year). In Hawai'i, the chemical companies are engaging in industrial and experimental agriculture, and planting three (3) or more crop growing cycles per year. See the non-confidential records obtained in the lawsuit by Waimea, Kaua'i residents against Pioneer Hi-Bred International, Inc.

9 MOST FREQUENT MISSTATEMENTS MADE BY CHEMICAL COMPANIES IN HAWAII

- The chemical companies are experimenting with “Roundup Ready” and other chemical-resistant crops, encouraging greater pesticide use. “Roundup resistance has led to greater use of herbicides, with troubling implications for biodiversity, sustainability, and human health.”
- The *Cascadia Times* reported: “Our investigation found that annualized pounds-per-acre usage of the seven highly toxic pesticides on Kaua‘i was greater, on average, than in all but four states: Florida, Louisiana, North Carolina and Indiana.”
- According to Kyle Smith, an attorney representing Waimea Residents in their lawsuit against DuPont Pioneer, during the August 5, 2013 Kaua‘i Council Meeting regarding Bill No. 2491 (Ordinance No. 960): “Sixty-five percent (65%) of the days of the year on average, so about two hundred forty (240) days, they are applying pesticides. You can look at the combinations that are applied. You could look at it by on the application days, the average is between eight (8) and maybe sixteen (16) applications per day of pesticides on these research fields. Most importantly though and I think what is most relevant for this discussion is the total usage. Recently, the industry statistics I saw put out at the public comment was that Kaua‘i was using about one (1) pound per acre, per season and that the mainland uses about two (2) pounds per acre and I have these charts to show you. Again, I believe it is a seed company graph. The reality is if you double that because we have multiple seasons, we have three (3) seasons. Typically, two (2) seasons are planted, you are looking at closer to two (2) pounds per acre, that puts us in the upper-level of the mainland usage. . . . 2010, 2009 you are looking at close to twelve (12) pounds per acre and the average usage, and this is Restricted-Use Pesticides, over that same time period would be eight (8) pounds per acre.”

3) CHEMICAL COMPANIES: “The information regarding the pesticides we use is already public information.”

THE TRUTH:

- The only State records kept are of Restricted Use Pesticides SOLD in the State of Hawai‘i—NOT the Pesticides USED. Additionally, these records are for RUPs only, not all pesticides.
- The State does not keep records of, and the companies have refused to release any information regarding, the amount of “General Use Pesticides” (such as Glyphosate) that they are using.
- The HDOA will no longer provide company-specific data but only aggregated data, which makes it impossible to determine what chemicals are being used by whom at what geographical location.
- The HDOA has charged hundreds of dollars to provide the data.
- Hawai‘i Revised Statutes 149A-31.2 (Pesticide use; posting online) (2013), mandating that HDOA “shall publish on its website the public information contained in all restricted use pesticide records, reports, or forms submitted to the department” still has yet to be implemented by HDOA.

9 MOST FREQUENT MISSTATEMENTS MADE BY CHEMICAL COMPANIES IN HAWAII

4) CHEMICAL COMPANIES: “We are highly regulated.”

THE TRUTH:

Not really.

- Federal agencies do not always have a Hawai‘i presence, rarely conduct on-site physical inspections, and have delegated responsibilities to the States and localities. See also Wisconsin Public Intervenor v. Mortier, 501 U. S. 597 (1991).
- Even though the chemical companies are by far the largest agricultural users of RUPs in the State and operate on over 20,000 acres often adjacent to homes, schools, and sensitive environmental areas, the HDOA infrequently inspects their operations.
 - Approximately 43% of the HDOA inspection log incidents are redacted from public view indicating inspection cases that remain “open” and/or otherwise contain information not available to the public.
 - It takes YEARS to investigate violations and complaints of pesticide drift. See the following:
 - Honolulu Civil Beat, “Does Hawai‘i’s Failure to Enforce Pesticide Use Justify Action by Kaua‘i?” (October 8, 2013)
 - Video of HDOA responses to the Kaua‘i County Council during proceedings for Bill No. 2491 (Ordinance No. 960)
 - Licensed physicians on Kaua‘i who practice in areas impacted by the chemical companies’ operations have expressed that they believe there is 10 times the national rate of certain rare congenital heart defects in newborns.
 - The State birth defects registry until very recently has not been updated since 2005.

5) CHEMICAL COMPANIES: “We only use what every other farmer uses.”

THE TRUTH:

Based on raw Kaua‘i data provided by HDOA showing three (3) years of RUPs purchased for use in Kaua‘i County – *NO OTHER REAL HAWAII FARMER USES ANYTHING EVEN CLOSE TO WHAT IS USED BY THE CHEMICAL COMPANIES*. Just in 2012, and just on Kaua‘i, over 5,477 pounds and 4,324 gallons were purchased by the chemical companies. The chemical companies have used at least 22 different types of RUPs, while regular food farmers use one (1) to possibly three (3) different types and use only a few gallons every few years. Summary data is here.

6) CHEMICAL COMPANIES: “We do not experiment with pesticides.”

THE TRUTH:

- *Bacillus thuringiensis* corn (“Bt Corn”) is considered a pesticide by the United States Environmental Protection Agency (EPA), and experiments with Bt Corn require an “Experimental Use Permit” (EUP) issued by the federal government. See for example here, and here (documents were provided by HDOA with all redactions as shown).

9 MOST FREQUENT MISSTATEMENTS MADE BY CHEMICAL COMPANIES IN HAWAII

- The chemical companies have other federal Experimental Use Permits; however, the total number of experiments conducted with pesticides is not known and public records contain redactions. See for example [here](#), and [here](#) (documents were provided by HDOA with all redactions as shown).

7) CHEMICAL COMPANIES: “The State and County also use large quantities of pesticides.”

THE TRUTH:

- The State and County primarily use general use pesticides such as Roundup for roadside spraying and park maintenance. These products are considered non-RUPs by the EPA and HDOA.
- The State uses very small amounts of RUPs in targeted efforts to fight invasive species.

8) CHEMICAL COMPANIES: “The County of Kaua‘i uses more RUPs than anyone.”

THE TRUTH:

- The only RUP the County uses is chlorine gas to eliminate bacteria in water. Chlorine gas is by definition a RUP but it is not applied in the open air near homes, schools, hospitals, or other sensitive areas. Its application is very controlled and the information pertaining to its use is public.

9) CHEMICAL COMPANIES: “What about golf courses? They use lots of pesticides, too.”

THE TRUTH:

- Reporting of golf course RUP sales on Kaua‘i in 2012 shows only approximately 50 pounds and 20 gallons of RUPs are used annually by all of the golf courses on Kaua‘i combined—compared to over 5,477 pounds and 4,324 gallons used by the 4 chemical companies each year. The raw data is [here](#) and the summary data is [here](#).

- Information provided by Kaua‘i County Councilmember Gary Hooser -

From: mailinglist@capitol.hawaii.gov
To: [HTHTestimony](#)
Cc: warrenmcfb@gmail.com
Subject: *Submitted testimony for SB801 on Feb 12, 2015 15:35PM*
Date: Wednesday, February 11, 2015 11:55:02 AM

SB801

Submitted on: 2/11/2015

Testimony for HTH/ENE on Feb 12, 2015 15:35PM in Conference Room 414

Submitted By	Organization	Testifier Position	Present at Hearing
Warren Watanabe	Maui County Farm Bureau	Oppose	No

Comments:

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

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American Academy of Pediatrics

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Sylvia R. Pager, MD, representing the American Academy of Pediatrics, Hawaii Chapter, presented the following testimony the morning of February 5th to the Hawaii House Committee on Energy and Environmental Protection.

Dr. Pager passed away on Sunday, February 8th following a severe stroke that occurred just after she testified at the state Legislature on Thursday.

To honor Dr. Pager's long-standing service and advocacy on behalf of Hawaii's pregnant women, breast-feeding mothers, and young children, the American Academy of Pediatrics, Hawaii Chapter will submit her testimony for HB1514 to committee hearings on every bill related to disclosure, notification, and buffer zones of toxic, restricted use pesticides and to our concern about pesticide exposure that science demonstrates negatively impacts the health and well-being of Hawaii's keiki.

Mahalo for the opportunity to honor Dr. Pager in this way, ensuring the voice of the American Academy of Pediatrics, Hawaii Chapter continues to be heard throughout this legislative session.

Aloha,

R. Michael Hamilton, MD, MS, FAAP

Committee on Energy and Environmental Protection
Representative Chris Lee, Chair
Representative Nicole E. Lowen, Vice Chair

Thursday, February 5, 2015
8:30am, Conference Room 325

Sylvia R. Pager, MD, MS, FAAP, FABM, IBCLC
Pediatrics Breastfeeding Medicine
Assoc. Clin. Prof., Dept. of Pediatrics
JABSOM, University of Hawaii
AAP Hawaii Chapter Breastfeeding Coordinator

TESTIMONY IN STRONG SUPPORT OF HB1514 – RELATING TO ENVIRONMENTAL PROTECTION

Aloha Kakou, Members of the Committee on Energy and Environmental Protection,

My name is Dr. Sylvia Pager and as a practicing pediatrician for over 38 years, I am writing to urge your strong support of HB1514 - Relating to Environmental Protection. This bill requires that the state to protect keiki and kupuna health by requiring disclosure, notification, and buffer zones of toxic restricted use pesticides around schools and nursing homes.

This bill protects our communities who could be potentially impacted by pesticide drift by requiring that restricted-use pesticide users disclose the pesticides they are spraying and notify communities who could be potentially impacted by pesticide drift. **Such regulations are in line with the regulations of 31 other states that understand it is vital for states to protect children and sensitive populations from the toxic impacts of pesticide use by regulating pesticide use on or around schools.**

It is critical that the state take action to reduce childhood pesticide exposure because toxic exposure to pesticides during fetal,¹ neonatal,² and infant life can disrupt critical developmental processes.³ Early life pesticide

¹ Rull RP, Gunier R, Von Behren J, Hertz A, Crouse V, Buffler PA, and Reynolds P. 2009. Residential Proximity to Agricultural Pesticide Applications and Childhood Acute Lymphoblastic Leukemia. *Environmental Research*, 109(7): 891-899.

² Chevrier C, Limon G, Monfort C, Rouget F, Garlantezec R, Petit C, Durand G, and Cordier A. 2011. Urinary Biomarkers of Prenatal Atrazine Exposure and Adverse Birth Outcomes in the PELAGIE Birth Cohort. *Environmental Health Perspectives*, 119(7): 1034-1041.

³ Shelton, JF et al. 2014. Neurodevelopmental Disorders and Prenatal Residential Proximity to Agricultural Pesticides: The CHARGE Study. *Environmental Health Perspective*, 122(10): 1103-1110.

exposure has been linked to long-term health effects including cancer,⁴ decreased cognitive function,^{5,6,7} behavior problems,^{8,9} birth defects and other adverse birth outcomes,^{10,11} and asthma.¹²

The American Academy of Pediatrics (AAP) recently published a major report entitled “**Pesticide Exposure in Children**” that comprehensively reviewed 195 medical studies on the subject (see Roberts and Karr 2012). Among other impacts, their chief concerns were as follows:

- 1) **Childhood cancers**, especially leukemia and brain tumors;
- 2) **Neurobehavioral and cognitive deficits**, such as reduced IQ and attention deficit/hyperactivity disorder;
- 3) **Adverse birth outcomes**, including preterm birth, low birth weight, and congenital anomalies; and
- 4) **Asthma**.

We briefly discuss each of these impacts below, with reference to the AAP’s comprehensive review.

Childhood cancers:

Five of six recent case-control studies found a statistically significant relationship between pesticide exposure and leukemia (see Roberts and Karr 2012, p. e1773-e1774). Two of the studies had the most detailed exposure assessment conducted to date, and found increasing risk with rising exposure, a strong indication that the observed associations are real. Maternal exposure to pesticides between the periods of preconception through pregnancy was the

⁴ Infante-Rivard C, Labuda D, Krajinovic M, Sinnett D. 1999. Risk of childhood leukemia associated with exposure to pesticides and with gene polymorphisms. *Epidemiology* 10(5): 481-487.

⁵ Rauh V, Arunajadai S, Horton M, et al. 2011. Seven-year neurodevelopmental scores and prenatal exposure to chlorpyrifos, a common agricultural pesticide. *Environ Health Perspect.* 119(8): 1196–1201.

⁶ Bouchard MF, Chevrier J, Harley KG, et al. 2011. Prenatal exposure to organophosphate pesticides and IQ in 7-year-old children. *Environ Health Perspect.* 119(8): 1189–1195.

⁷ Engel SM, Wetmur J, Chen J, et al. 2011. Prenatal exposure to organophosphates, paraoxonase 1, and cognitive development in childhood. *Environ Health Perspect.* 119(8): 1182–1188.

⁸ Roberts EM, English PB, Grether JK, Windham GC, Somberg L, and Wolf C. 2007. Maternal Residence near Agricultural Pesticide Applications and Autism Spectrum Disorder among Children in the California Central Valley. *Environmental Health Perspectives*, 115(10): 1482-1489.

⁹ Bouchard MF, Bellinger DC, Wright RO, Weisskopf MG. 2010. Attention-deficit/hyperactivity disorder and urinary metabolites of organophosphate pesticides. *Pediatrics*. 125(6). Available at: www.pediatrics.org/cgi/content/full/125/6/e1270.

¹⁰ Garry VF, Harkins ME, Erickson LL, Long-Simpson LK et al. 2002. Birth Defects, Season of Conception, and Sex of Children Born to Pesticide Applicators Living in the Red River Valley of Minnesota, USA. *Environmental Health Perspectives* 110 (Suppl. 3): 441-449.

¹¹ Garry VF, Harkins ME, Erickson LL, Long-Simpson LK et al. 2002. Birth Defects, Season of Conception, and Sex of Children Born to Pesticide Applicators Living in the Red River Valley of Minnesota, USA. *Environmental Health Perspectives* 110 (Suppl. 3): 441-449.

¹² Salam MT, Li YF, Langholz B, Gilliland FD; Children’s Health Study. 2004. Early-life environmental risk factors for asthma: findings from the Children’s Health Study. *Environ Health Perspect.* 112(6): 760–765.

primary risk factor. Maternal use of either herbicides or insecticides was associated with nearly double the risk of childhood leukemia (Infante-Rivard et al. 1999). A meta-analysis provided additional support, also showing double the risk of leukemia in mothers exposed to pesticides while pregnant or while their children were young (Wigle et al. 2009). Monge et al. (2007) also found increased risk of leukemia in children borne to parents exposed occupationally to pesticides in Costa Rica.

Nine of the ten studies examining pesticides and brain cancer that have been conducted since 1998 demonstrated an **increased risk estimate of brain tumors with maternal and/or paternal exposure to pesticides**, though not all achieved statistical significance. One study, which involved 321 cases demonstrated that **maternal exposure to insecticides before or during pregnancy was associated with a 90% greater risk of astrocytoma** (a type of brain cancer) in the child, as well as a trend to higher risk in exposed fathers (van Wijngaarden et al. 2003).

Neurobehavioral and cognitive deficits:

Exposure to many pesticides causes acute neurological symptoms, such as headaches and dizziness. However, a spate of recent studies is building an irrefutable case that long-term, low-level exposure to organophosphate insecticides (OPs) in early life (particularly *in utero*) has profoundly negative impacts on children's neurological development.

The National Institutes of Health and the EPA are sponsoring three large-scale studies into this subject, two in urban settings and one in a rural community (see Roberts and Karr 2012, e1775-e1776). Women were enrolled during pregnancy, and their exposure to OPs carefully measured. Their children were tested for neurological development in the following years. The studies demonstrate that at two to four years of age, higher prenatal OP exposure was associated with "significantly poorer mental development," "pervasive developmental disorder," and in one group "increased scores for attention-deficit/hyperactivity disorder" (Eskenazi et al. 2007, Rauh et al. 2006). At seven years of age, kids more highly exposed to OPs in the womb had lower IQ scores in all three groups (Rauh et al. 2011, Bouchard et al. 2011, Engel et al 2011). Bouchard et al (2010) similarly found increased rates of attention-deficit/hyperactivity disorder in eight to 15-years olds whose urine had higher levels of OP breakdown products, a sign of greater exposure.

These findings are even more concerning when one considers the intensive use of chlorpyrifos in Hawaii's seed corn operations, coupled with its propensity to drift. **Chlorpyrifos has been linked to lung cancer, colorectal cancer, and non-Hodgkin's lymphoma.** An examination of California's Pesticide Illness Surveillance Program shows that chlorpyrifos was among the most frequently cited culprits in drift-related pesticide illnesses over the past two decades (CA PISP 1992-2011). The US Geological Survey has found "toxic rainfall"

containing excessive levels of chlorpyrifos (for aquatic life) in California (USGS 2003).

Records released by DuPont-Pioneer show the company sprays OPs on Kaua'i frequently, once every four days (91 days/year). The OP insecticide chlorpyrifos is also one of the most heavily used RUPs on Kaua'i, and **according to the Kauai Good Neighbor Program, in the last 13 months 1,975lbs of chlorpyrifos has been used on Kauai**. Air sampling at Waimea school has consistently detected chlorpyrifos. Thus, based on these lines of evidence, there is sure reason to expect that chlorpyrifos drift is adversely affecting the health of residents.

Adverse birth outcomes

The American Academy of Pediatrics is also concerned about the possible role of pesticides in triggering adverse birth outcomes (see Roberts and Karr 2012, e1776-e1778). Two studies in Minnesota have revealed a **higher rate of birth defects in children fathered by male pesticide applicators in areas of the state where chlorophenoxy herbicides (e.g. 2,4-D) and fungicides are most heavily applied**. These studies also found a seasonal effect, with **children conceived in the spring, when herbicide use is heaviest, exhibiting the highest birth defect rates** (Garry et al. 1996, Garry et al. 2002). Six additional studies described by Roberts and Karr (2012) found higher risk ratios for birth defects in mothers exposed to pesticides, with three of them showing statistically significant effects. A study of expectant mothers carried out in New York demonstrated an association between exposure to chlorpyrifos and reduced birth weight and length (Perera et al. 2003). Wolff et al. (2007) also found reduced birth weight in infants born to mothers exposed to OPs during pregnancy, but only in those children with a mutation that reduces their ability to detoxify OPs. Another study found that *in utero* exposure to OPs was associated with reduced gestation time (Eskenazi et al. 2004). Prenatal atrazine exposure has been associated with suppression of fetal growth (Chevrier et al 2011) and **exposure to chlorophenoxy herbicides and certain other classes of herbicide, such as triazines (e.g. atrazine), with increased risk of spontaneous abortion** (Arbuckle et al. 1999, 2001).

Asthma

The AAP also considers asthma to be a major adverse health outcome of pesticide exposure (see Roberts and Karr 2012, e1779). Asthma is the most common, chronic noninfectious disease of childhood, and is estimated to affect 300 million people worldwide, causing a quarter of a million deaths each year (Strina et al. 2014). Asthma is characterized by intermittent breathing difficulty, including chest tightness, wheezing, cough and shortness of breath. There have been few studies of pesticides and asthma in children, but those conducted raise serious concerns. For instance, **exposure to either herbicides or insecticides in the first year of life was strongly linked to a diagnosis of asthma before the age of five** in a study carried out in southern California – an over four-fold higher risk from herbicides and more than two-fold greater risk from insecticide

exposure (Salam et al 2004). Studies of adults provide similar evidence. **Farmers are at high risk of asthma and other respiratory diseases** (Hoppin 2002), and exposure to organophosphate and carbamate insecticides has been linked to asthma in Canadian farmers (Senthilselvan et al. 1992). Two studies in the U.S. have associated exposure to a number of pesticides with wheezing, one of the major symptoms of asthma. Hoppin et al (2002) found a higher incidence of wheezing in farmers exposed to the herbicides atrazine, alachlor and paraquat, as well as the OP insecticides chlorpyrifos, parathion and malathion. **All of these pesticides are used heavily and frequently in Hawai'i.** These findings take on added weight when one considers the testimony of Kaua'i physicians that Westside residents are very frequently afflicted with symptoms of respiratory distress.

Children may be exposed to and harmed by pesticides even when they are exposed only at second hand. For example, farmworkers exposed to pesticides may accumulate residues on their skin and clothing, and thereby inadvertently expose their families (Thompson et al., 2003). Similarly, rural homes have much higher levels of pesticide residues in dust than non-rural residences (Simcox et al, 1995, 1999; Rull et al., 2009). These take-home pathways can contribute to children's exposure to pesticides in agricultural communities (Lu et al, 2000).

Health Harms Specifically Linked to Pesticide Drift

The medical studies discussed above address the harms of pesticides from a variety of exposure pathways: food, water, dermal contact, inhalation and/or drift. Below, we discuss studies that specifically address health outcomes where drift is the presumed exposure pathway.

A growing body of research supports the proposition that living near pesticide-sprayed fields increases the risks of a number of serious diseases, and exposure via pesticide drift is the only logical explanation. Many of these studies have been conducted in California, which has an extremely fine-grained pesticide reporting system that provides precise information on which pesticides are sprayed near any given community, when, and in what amounts. Epidemiological studies based on this information have made some troubling findings. For instance, Costello et al. (2009) have found that **exposure to paraquat and maneb within 500 meters of the home increased the risk of Parkinson's disease by 75%, with those under 60 years of age at higher risk.**

Autism

Roberts et al. (2007) conducted an analysis, which found that **expectant mothers residing within 500 meters of fields sprayed with organochlorine insecticides (e.g. dicofol and endosulfan) during early pregnancy had a six-fold higher risk of bearing children with autism spectrum disorder than**

mothers not living near such fields; this ASD risk declined with increasing distance from field sites and increased with rising application amounts.

Shelton et al. (2014) found a 60% increased risk of autism spectrum disorder (ASD) in children of mothers who lived near fields sprayed with organophosphate insecticides at some point during their pregnancies, with much higher risk when exposure occurred in the second trimester of their pregnancies. Similarly increased risk – for both ASD and developmental delay – was found for children of mothers near fields treated with pyrethroid insecticides just prior to conception or during their third trimester. Proximity to carbamate-treated fields was also linked to higher risk of developmental delay.

Several of the insecticides at issue in this California study are used on Kaua'i and likely on other islands as well: one of the three organophosphates (chlorpyrifos); four of the five pyrethroid insecticides – permethrin, lambda-cyhalothrin, cypermethrin and esfenvalerate; and one of the two carbamates (methomyl).

With at least 26 schools in Hawaii located within one mile of large agricultural companies, this is of grave concern.

The medical evidence is staggering and highly unnerving. As a doctor, it is my obligation to tend to the health of my community. I take this responsibility with great seriousness. I respectfully urge the committee members to take their role as policymakers with the same level of seriousness, and pass this measure to protect our keiki.

Thank you for this opportunity to provide testimony, I am happy to provide further analysis or respond to follow-up questions from the Committee.

Sincerely,

Sylvia R. Pager, MD

Registration Number	Product Name	Registration Status	Company Name	Active Ingredient
4-152	BONIDE ORCHARD MOUSE BAIT	Registered (03-Mar-1967)	BONIDE PRODUCTS, INC.	Zinc phosphide (Zn3P2)
100-1238	SCIMITAR GR INSECTICIDE	Registered (14-Mar-2006)	SYNGENTA CROP PROTECTION, LLC	lambda-Cyhalothrin
100-1316	CYCLONE STAR	Registered (28-Jul-2008)	SYNGENTA CROP PROTECTION, LLC	Carfentrazone-ethyl
100-1316	CYCLONE STAR	Registered (28-Jul-2008)	SYNGENTA CROP PROTECTION, LLC	Paraquat dichloride
100-1359	CALLISTO XTRA	Registered (12-Jan-2010)	SYNGENTA CROP PROTECTION, LLC	Atrazine
100-1359	CALLISTO XTRA	Registered (12-Jan-2010)	SYNGENTA CROP PROTECTION, LLC	Mesotrione
100-1361	FORCE SB	Registered (13-Jun-2012)	SYNGENTA CROP PROTECTION, LLC	Tefluthrin
100-1405	AVICTA COMPLETE CORN 250	Registered (19-Oct-2011)	SYNGENTA CROP PROTECTION, LLC	Thiamethoxam
100-1405	AVICTA COMPLETE CORN 250	Registered (19-Oct-2011)	SYNGENTA CROP PROTECTION, LLC	Thiabendazole
100-1405	AVICTA COMPLETE CORN 250	Registered (19-Oct-2011)	SYNGENTA CROP PROTECTION, LLC	Azoxystrobin
100-1405	AVICTA COMPLETE CORN 250	Registered (19-Oct-2011)	SYNGENTA CROP PROTECTION, LLC	D-Alanine, N-(2,6-dimethylphenyl)-N-(methoxyacetyl)-, methyl ester
100-1405	AVICTA COMPLETE CORN 250	Registered (19-Oct-2011)	SYNGENTA CROP PROTECTION, LLC	Fludioxonil
100-1405	AVICTA COMPLETE CORN 250	Registered (19-Oct-2011)	SYNGENTA CROP PROTECTION, LLC	Abamectin
100-1414	LEXAR EZ HERBICIDE	Registered (14-Dec-2011)	SYNGENTA CROP PROTECTION, LLC	Mesotrione
100-1414	LEXAR EZ HERBICIDE	Registered (14-Dec-2011)	SYNGENTA CROP PROTECTION, LLC	S-Metolachlor
100-1414	LEXAR EZ HERBICIDE	Registered (14-Dec-2011)	SYNGENTA CROP PROTECTION, LLC	Atrazine
100-1431	GRAMOXONE SL 2.0	Registered (13-Oct-2011)	SYNGENTA CROP PROTECTION, LLC	Paraquat dichloride
100-1439	Epi-Mek SCL	Registered (16-May-2012)	SYNGENTA CROP PROTECTION, LLC	Abamectin

Registration Number	Product Name	Registration Status	Company Name	Active Ingredient
100-1442	Lumax EZ Herbicide	Registered (02-Aug-2012)	SYNGENTA CROP PROTECTION, LLC	S-Metolachlor
100-1442	Lumax EZ Herbicide	Registered (02-Aug-2012)	SYNGENTA CROP PROTECTION, LLC	Atrazine
100-1442	Lumax EZ Herbicide	Registered (02-Aug-2012)	SYNGENTA CROP PROTECTION, LLC	Mesotrione
228-535	TROOPER 22K HERBICIDE	Registered (06-Dec-2007)	NUFARM AMERICAS, INC.	Picloram-potassium
228-599	TROOPER PRO HERBICIDE	Registered (01-Apr-2009)	NUFARM AMERICAS, INC.	Fluroxypyr 1-methylheptyl ester
228-599	TROOPER PRO HERBICIDE	Registered (01-Apr-2009)	NUFARM AMERICAS, INC.	2-Pyridinecarboxylic acid, 4-amino-3,5,6-trichloro-, compd. with 1,1',1''-nitritotris(2-propanol) (1:1)
228-717	Kilter Insecticide	Registered (02-Jan-2013)	NUFARM AMERICAS, INC.	lambda-Cyhalothrin
228-717	Kilter Insecticide	Registered (02-Jan-2013)	NUFARM AMERICAS, INC.	Imidacloprid
264-600	BALANCE PRO HERBICIDE	Registered (13-Jun-2003)	BAYER CROPSCIENCE LP	Methanone,(5-cyclopropyl-4-isoxazolyl){2-(methylsu
264-642	HOELON TECHNICAL	Registered (31-Mar-1980)	BAYER CROPSCIENCE LP	Diclofop-methyl
264-800	EPIC DF HERBICIDE	Registered (30-Jul-2003)	BAYER CROPSCIENCE LP	Flufenacet
264-800	EPIC DF HERBICIDE	Registered (30-Jul-2003)	BAYER CROPSCIENCE LP	Methanone,(5-cyclopropyl-4-isoxazolyl){2-(methylsu
264-852	FLUFENACET & ISOXAFLUTOLE SC	Registered (05-Apr-2005)	BAYER CROPSCIENCE LP	Methanone,(5-cyclopropyl-4-isoxazolyl){2-(methylsu
264-852	FLUFENACET & ISOXAFLUTOLE SC HERBICIDE	Registered (05-Apr-2005)	BAYER CROPSCIENCE LP	Flufenacet
264-1135	HUSKIE COMPLETE	Registered (06-Dec-2011)	BAYER CROPSCIENCE LP	Bromoxynil octanoate
264-1135	HUSKIE COMPLETE	Registered (06-Dec-2011)	BAYER CROPSCIENCE LP	Thiencarbazone-methyl

Registration Number	Product Name	Registration Status	Company Name	Active Ingredient
264-1135	HUSKIE COMPLETE	Registered (06-Dec-2011)	BAYER CROPSCIENCE LP	Pyrasulfotole Technical
279-3115	BIFLEX FT TERMITICIDE	Registered (10-Jun-2003)	FMC CORP. AGRICULTURAL PRODUCTS GROUP	Bifenthrin
279-3253	FMC 01-0004 INSECTICIDE	Registered (18-Jun-2003)	FMC CORP. AGRICULTURAL PRODUCTS GROUP	Bifenthrin
279-3440	F9210-1 INSECTICIDE	Registered (06-Dec-2011)	FMC CORP. AGRICULTURAL PRODUCTS GROUP	Zeta-Cypermethrin
279-3440	F9210-1 INSECTICIDE	Registered (06-Dec-2011)	FMC CORP. AGRICULTURAL PRODUCTS GROUP	Bifenthrin
279-3440	F9210-1 INSECTICIDE	Registered (06-Dec-2011)	FMC CORP. AGRICULTURAL PRODUCTS GROUP	Imidacloprid
279-3441	F 9318	Registered (22-Jun-2012)	FMC CORP. AGRICULTURAL PRODUCTS GROUP	Abamectin
279-3441	F 9318	Registered (22-Jun-2012)	FMC CORP. AGRICULTURAL PRODUCTS GROUP	Zeta-Cypermethrin
279-3445	TALSTAR 0.096 GRANULAR INSECTICIDE WITH FERTILIZER	Registered (27-Feb-2012)	FMC CORP. AGRICULTURAL PRODUCTS GROUP	Bifenthrin
279-3449	F9316-2 HERBICIDE	Registered (09-Nov-2012)	FMC CORP. AGRICULTURAL PRODUCTS GROUP	Atrazine
279-3449	F9316-2 HERBICIDE	Registered (09-Nov-2012)	FMC CORP. AGRICULTURAL PRODUCTS GROUP	Fluthiacet-methyl
279-3449	F9316-2 HERBICIDE	Registered (09-Nov-2012)	FMC CORP. AGRICULTURAL PRODUCTS GROUP	Pyroxasulfone

Registration Number	Product Name	Registration Status	Company Name	Active Ingredient
279-3457	TRIPLE CROWN GOLF INSECTICIDE	Registered (01-Apr-2013)	FMC CORP. AGRICULTURAL PRODUCTS GROUP	Imidacloprid
279-3457	TRIPLE CROWN GOLF INSECTICIDE	Registered (01-Apr-2013)	FMC CORP. AGRICULTURAL PRODUCTS GROUP	Zeta-Cypermethrin
279-3457	TRIPLE CROWN GOLF INSECTICIDE	Registered (01-Apr-2013)	FMC CORP. AGRICULTURAL PRODUCTS GROUP	Bifenthrin
279-9545	F9047-2 EC INSECTICIDE	Registered (21-Jan-2011)	FMC CORP. AGRICULTURAL PRODUCTS GROUP	Zeta-Cypermethrin
279-9545	F9047-2 EC INSECTICIDE	Registered (21-Jan-2011)	FMC CORP. AGRICULTURAL PRODUCTS GROUP	Chlorpyrifos
322-1	FORT DODGE GOPHER BAIT	Registered (31-Dec-1947)	FORT DODGE CHEMICAL COMPANY	Strychnine
352-624	DUPONT CINCH ATZ HERBICIDE	Registered (27-Dec-2002)	E. I. DU PONT DE NEMOURS AND COMPANY (S300/419)	Atrazine
352-624	DUPONT CINCH ATZ HERBICIDE	Registered (27-Dec-2002)	E. I. DU PONT DE NEMOURS AND COMPANY (S300/419)	S-Metolachlor
352-722	DUPONT BREAKFREE HERBICIDE	Registered (01-Nov-2006)	E. I. DU PONT DE NEMOURS AND COMPANY (S300/419)	Acetochlor
352-723	DUPONT BREAKFREE ATZ LITE	Registered (01-Nov-2006)	E. I. DU PONT DE NEMOURS AND COMPANY (S300/419)	Acetochlor
352-723	DUPONT BREAKFREE ATZ LITE	Registered (01-Nov-2006)	E. I. DU PONT DE NEMOURS AND COMPANY (S300/419)	Atrazine
352-724	DUPONT BREAKFREE ATZ HERBICIDE	Registered (01-Nov-2006)	E. I. DU PONT DE NEMOURS AND COMPANY (S300/419)	Acetochlor

Registration Number	Product Name	Registration Status	Company Name	Active Ingredient
352-724	DUPONT BREAKFREE ATZ HERBICIDE	Registered (01-Nov-2006)	E. I. DU PONT DE NEMOURS AND COMPANY (S300/419)	Atrazine
400-83	OMITE-57E	Registered (18-Apr-1969)	CHEMTURA CORPORATION	Propargite
524-314	LASSO HERBICIDE	Registered (11-Jun-2003)	MONSANTO COMPANY	Alachlor
524-329	LARIAT HERBICIDE	Registered (11-Jun-2003)	MONSANTO COMPANY	Alachlor
524-329	LARIAT HERBICIDE	Registered (11-Jun-2003)	MONSANTO COMPANY	Atrazine
524-344	MICRO-TECH HERBICIDE	Registered (11-Jun-2003)	MONSANTO COMPANY	Alachlor
524-418	BULLET HERBICIDE	Registered (11-Jun-2003)	MONSANTO COMPANY	Atrazine
524-418	BULLET HERBICIDE	Registered (11-Jun-2003)	MONSANTO COMPANY	Alachlor
524-480	HARNESS XTRA HERBICIDE	Registered (11-Jun-2003)	MONSANTO COMPANY	Atrazine
524-480	HARNESS XTRA HERBICIDE	Registered (11-Jun-2003)	MONSANTO COMPANY	Acetochlor
524-485	HARNESS XTRA 5.6L HERBICIDE PREMIX FOR CORN	Registered (11-Jun-2003)	MONSANTO COMPANY	Atrazine
524-485	HARNESS XTRA 5.6L HERBICIDE PREMIX FOR CORN	Registered (11-Jun-2003)	MONSANTO COMPANY	Acetochlor
524-496	MON 58430 HERBICIDE	Registered (11-Jun-2003)	MONSANTO COMPANY	Acetochlor
524-497	MON 58442 HERBICIDE	Registered (11-Jun-2003)	MONSANTO COMPANY	Glyphosate-isopropylammonium
524-497	MON 58442 HERBICIDE	Registered (11-Jun-2003)	MONSANTO COMPANY	Acetochlor
524-497	MON 58442 HERBICIDE	Registered (11-Jun-2003)	MONSANTO COMPANY	Atrazine
524-511	MON 58494	Registered (11-Jun-2003)	MONSANTO COMPANY	Acetochlor
524-511	MON 58494	Registered (11-Jun-2003)	MONSANTO COMPANY	Atrazine
655-422	PRENTOX PRENFISH TOXICANT	Registered (18-May-1972)	PRENTISS LLC	Cube Resins other than rotenone
655-422	PRENTOX PRENFISH TOXICANT	Registered (18-May-1972)	PRENTISS LLC	Rotenone
769-678	TEMEXX 4EC LARVICIDE	Registered (19-Aug-1971)	VALUE GARDENS SUPPLY, LLC	Temephos

Registration Number	Product Name	Registration Status	Company Name	Active Ingredient
814-9	FORCE'S MOUS-CON NO. 2	Registered (15-Sep-1960)	CARAJON CHEMICAL COMPANY INC.	Zinc phosphide (Zn3P2)
1015-70	SANAFOAM VAPOROOTER II	Registered (15-Jun-1973)	DOUGLAS PRODUCTS AND PACKAGING COMPANY	Metam-sodium
1015-70	SANAFOAM VAPOROOTER II	Registered (15-Jun-1973)	DOUGLAS PRODUCTS AND PACKAGING COMPANY	Dichlobenil
1381-158	AGRISOLUTIONS ATRAZINE 4L	Registered (19-Nov-1975)	WINFIELD SOLUTIONS, LLC	Atrazine
2935-555	DEADLOCK G	Registered (17-Oct-2012)	WILBUR-ELLIS COMPANY	Zeta-Cypermethrin
4271-10	POCKET GOPHER BAIT CONTAINING STRYCHNINE 1-10 FORMULATION ON	Registered (26-Feb-1973)	R & M EXTERMINATORS INC	Strychnine
5042-35	RCO PATROL BURROW BUILDER BAIT FOR MOLES & GOPHERS	Registered (23-Aug-2012)	RCO INTERNATIONAL INC.	Diphacinone
5481-350	METAM SODIUM	Registered (21-Aug-1969)	AMVAC CHEMICAL CORPORATION	Metam-sodium
5481-448	AMVAC BIDRIN 8 WATER MISCIBLE INSECTICIDE	Registered (29-Oct-1986)	AMVAC CHEMICAL CORPORATION	Dicrotophos
5481-482	FLY KILLER D	Registered (13-Apr-1960)	AMVAC CHEMICAL CORPORATION	Naled
5481-526	THIMET 10-G SOIL AND SYSTEMIC INSECTICIDE	Registered (10-Mar-1959)	AMVAC CHEMICAL CORPORATION	Phorate
5481-527	THIMET 15-G SOIL AND SYSTEMIC INSECTICIDE	Registered (17-Mar-1966)	AMVAC CHEMICAL CORPORATION	Phorate
5481-552	BIDRIN XP	Registered (28-Jun-2007)	AMVAC CHEMICAL CORPORATION	Bifenthrin
5481-552	BIDRIN XP	Registered (28-Jun-2007)	AMVAC CHEMICAL CORPORATION	Dicrotophos
5481-9024	BIDRIN XP II	Registered (01-Jul-2011)	AMVAC CHEMICAL CORPORATION	Dicrotophos
5481-9024	BIDRIN XP II	Registered (01-Jul-2011)	AMVAC CHEMICAL CORPORATION	Bifenthrin

Registration Number	Product Name	Registration Status	Company Name	Active Ingredient
5785-11	METH-O-GAS 100	Registered (01-May-1962)	GREAT LAKES CHEMICAL CORPORATION	Methyl bromide (NO INERT USE)
5785-19	TERR-O-GAS 70 PREPLANT SOIL FUMIGANT	Registered (29-Sep-1966)	GREAT LAKES CHEMICAL CORPORATION	Methyl bromide (NO INERT USE)
5785-19	TERR-O-GAS 70 PREPLANT SOIL FUMIGANT	Registered (29-Sep-1966)	GREAT LAKES CHEMICAL CORPORATION	Chloropicrin
5785-40	TERR-O-GAS 75	Registered (09-Jan-1973)	GREAT LAKES CHEMICAL CORPORATION	Methyl bromide (NO INERT USE)
5785-40	TERR-O-GAS 75	Registered (09-Jan-1973)	GREAT LAKES CHEMICAL CORPORATION	Chloropicrin
5785-41	METH-O-GAS Q	Registered (03-Jan-1972)	GREAT LAKES CHEMICAL CORPORATION	Methyl bromide (NO INERT USE)
5785-48	TERR-O-GAS 50	Registered (19-Feb-1974)	GREAT LAKES CHEMICAL CORPORATION	Chloropicrin
5785-48	TERR-O-GAS 50	Registered (19-Feb-1974)	GREAT LAKES CHEMICAL CORPORATION	Methyl bromide (NO INERT USE)
5905-248	DIAZINON AG500 INSECTICIDE	Registered (12-Jul-1974)	HELENA CHEMICAL CO	Diazinon
6704-91	BAYLUSCIDE 3.2% GRANULAR SEA LAMPREY LARVICIDE	Registered (18-Jul-1990)	U.S. FISH AND WILDLIFE SERVICES	Niclosamide
6704-92	BAYLUSCIDE 20% EMULSIFIABLE CONCENTRATE	Registered (13-Jan-2003)	U.S. FISH AND WILDLIFE SERVICES	Niclosamide
7173-113	ROZOL TRACKING POWDER	Registered (22-Jan-1973)	LIPHATECH, INC.	Chlorophacinone
7173-172	ROZOL BLUE TRACKING POWDER	Registered (18-Sep-1978)	LIPHATECH, INC.	Chlorophacinone

Registration Number	Product Name	Registration Status	Company Name	Active Ingredient
7173-294	ROZOL POCKET GOPHER BAIT III	Registered (14-Feb-2011)	LIPHATECH, INC.	Chlorophacinone
7173-299	ROZOL MINI BLOCKS 0803	Registered (30-Jun-2011)	LIPHATECH, INC.	Chlorophacinone
7969-320	Kifix 70 DG Herbicide	Registered (23-Feb-2011)	BASF CORPORATION	Imazapic
7969-320	Kifix 70 DG Herbicide	Registered (23-Feb-2011)	BASF CORPORATION	Imazapyr
8033-116	JUSTICE OF INSECTICIDE	Registered (29-Mar-2012)	NIPPON SODA CO LTD	Acetamiprid
8033-116	JUSTICE OF INSECTICIDE	Registered (29-Mar-2012)	NIPPON SODA CO LTD	Bifenthrin
8536-2	CHLOROPICRIN 100 FUMIGANT	Registered (10-Aug-1964)	SOIL CHEMICALS CORPORATION	Chloropicrin
8536-6	PIC-BROM 55	Registered (31-Aug-1964)	SOIL CHEMICALS CORPORATION	Chloropicrin
8536-6	PIC-BROM 55	Registered (31-Aug-1964)	SOIL CHEMICALS CORPORATION	Methyl bromide (NO INERT USE)
8536-7	PIC-BROM 43	Registered (31-Aug-1964)	SOIL CHEMICALS CORPORATION	Methyl bromide (NO INERT USE)
8536-7	PIC-BROM 43	Registered (31-Aug-1964)	SOIL CHEMICALS CORPORATION	Chloropicrin
8536-8	PIC-CLOR 60	Registered (25-Jan-1967)	SOIL CHEMICALS CORPORATION	Chloropicrin
8536-8	PIC-CLOR 60	Registered (25-Jan-1967)	SOIL CHEMICALS CORPORATION	Telone
8536-9	PIC-BROM 50	Registered (20-May-1967)	SOIL CHEMICALS CORPORATION	Chloropicrin
8536-9	PIC-BROM 50	Registered (20-May-1967)	SOIL CHEMICALS CORPORATION	Methyl bromide (NO INERT USE)
8536-15	METHYL BROMIDE 100	Registered (18-Sep-1978)	SOIL CHEMICALS CORPORATION	Methyl bromide (NO INERT USE)
9198-233	THE ANDERSONS GC BICARB INSECTICIDE + FERTILIZER	Registered (06-Nov-2006)	THE ANDERSONS LAWN FERTILIZER DIVISION, INC.	Bifenthrin
9198-233	THE ANDERSONS GC BICARB INSECTICIDE + FERTILIZER	Registered (06-Nov-2006)	THE ANDERSONS LAWN FERTILIZER DIVISION, INC.	Carbaryl

Registration Number	Product Name	Registration Status	Company Name	Active Ingredient
10031-1	PETERSENS POCKET GOPHER KILLER I FOR POCKET GOPHER CONTROL O	Registered (10-May-1968)	PETERSEN SEEDS INC	Strychnine
10031-2	PETERSENS POCKET GOPHER KILLER II FOR POCKET GOPHER CONTROL	Registered (18-Mar-1976)	PETERSEN SEEDS INC	Strychnine
10031-3	PETERSENS POCKET GOPHER KILLER III FOR POCKET GOPHER CONTROL	Registered (29-Apr-1976)	PETERSEN SEEDS INC	Strychnine
10163-46	PROKIL NALED INSECTICIDE	Registered (07-Jan-1975)	GOWAN COMPANY	Naled
10163-231	MESUROL 75-W	Registered (24-Feb-1976)	GOWAN COMPANY	Methiocarb
10163-285	GOWAN EPTAM/ACETOCHLOR 67.8%/16.9% EC HERBICIDE	Registered (27-Jun-2005)	GOWAN COMPANY	Acetochlor
10163-285	GOWAN EPTAM/ACETOCHLOR 67.8%/16.9% EC HERBICIDE	Registered (27-Jun-2005)	GOWAN COMPANY	Carbamothioic acid, dipropyl-, S-ethyl ester
10707-9	MAGNACIDE H HERBICIDE	Registered (26-Nov-1975)	BAKER PETROLITE CORPORATION	Acrolein
11220-1	TRI-CAL TRILONE II SOIL FUMIGANT	Registered (13-Feb-1976)	TRICAL INC.	Telone
11220-20	TELONE C-15	Registered (08-Aug-1988)	TRICAL INC.	Chloropicrin
11220-20	TELONE C-15	Registered (08-Aug-1988)	TRICAL INC.	Telone
11220-21	TRI-FORM 30	Registered (08-Aug-1988)	TRICAL INC.	Chloropicrin
11220-21	TRI-FORM 30	Registered (08-Aug-1988)	TRICAL INC.	Telone
11220-34	TRI-FORM 40 EC	Registered (01-Mar-2013)	TRICAL INC.	Telone
11220-34	TRI-FORM 40 EC	Registered (01-Mar-2013)	TRICAL INC.	Chloropicrin
11556-174	VAPONA CONCENTRATE INSECTICIDE	Registered (06-Dec-1971)	BAYER HEALTHCARE LLC	Dichlorvos
11649-4	AVITROL MIXED GRAINS	Registered (21-Jan-1972)	AVITROL CORPORATION	4-Aminopyridine

Registration Number	Product Name	Registration Status	Company Name	Active Ingredient
11649-5	AVITROL DOUBLE STRENGTH CORN CHOPS	Registered (21-Jan-1972)	AVITROL CORPORATION	4-Aminopyridine
11649-6	AVITROL CORN CHOPS	Registered (21-Jan-1972)	AVITROL CORPORATION	4-Aminopyridine
11649-7	AVITROL WHOLE CORN	Registered (21-Jan-1972)	AVITROL CORPORATION	4-Aminopyridine
11649-8	AVITROL DOUBLE STRENGTH WHOLE CORN	Registered (21-Jan-1972)	AVITROL CORPORATION	4-Aminopyridine
11685-20	CHIPTOX MCPA SODIUM SALT HERBICIDE	Registered (23-Jun-1954)	NUFARM UK LIMITED	MCPA, sodium salt
11930-11	PYRIFOS POULTRY HOUSE MIST	Registered (27-Jul-2010)	GIL MFG INC.	Chlorpyrifos
11930-16	ACTIPERM 10% E.C. MULTI-PURPOSE INSECTICIDE	Registered (27-Mar-2013)	GIL MFG INC.	Permethrin
12455-16	ZP TRACKING POWDER	Registered (10-May-1978)	BELL LABORATORIES, INC	Zinc phosphide (Zn3P2)
12455-102	ZP RODENT OAT BAIT AG	Registered (09-May-2007)	BELL LABORATORIES, INC	Zinc phosphide (Zn3P2)
12455-136	PCQ Rodent Bait	Registered (29-Sep-2011)	BELL LABORATORIES, INC	Diphacinone
13808-7	COMPOUND 1080 LIVESTOCK PROTECTION COLLAR	Registered (11-Jan-1989)	SD DEPT OF AGRICULTURE	Sodium fluoroacetate
13808-8	M-44 CYANIDE CAPSULES	Registered (02-Sep-1998)	SD DEPT OF AGRICULTURE	Sodium cyanide
15298-4	METHYL BROMIDE 100	Registered (03-Oct-1973)	BROMINE COMPOUNDS LTD.	Methyl bromide (NO INERT USE)
19713-306	PEARSON'S THERMO FOG	Registered (05-Oct-1962)	DREXEL CHEMICAL COMPANY	Dichlorvos
19713-316	DREXEL 7.4% ROTENONE WETTABLE POWDER	Registered (20-Apr-1972)	DREXEL CHEMICAL COMPANY	Rotenone
19713-316	DREXEL 7.4% ROTENONE WETTABLE POWDER	Registered (20-Apr-1972)	DREXEL CHEMICAL COMPANY	Cube Resins other than rotenone
19713-354	BEST 4 SERVIS BRAND DDVP SHOW COAT DAIRY CATTLE SPRAY	Registered (09-Mar-1990)	DREXEL CHEMICAL COMPANY	Dichlorvos
19713-568	DREXEL POWER PLAY HERBICIDE	Registered (14-Feb-2005)	DREXEL CHEMICAL COMPANY	Carbamothioic acid, dipropyl-, S-ethyl ester

Registration Number	Product Name	Registration Status	Company Name	Active Ingredient
19713-568	DREXEL POWER PLAY HERBICIDE	Registered (14-Feb-2005)	DREXEL CHEMICAL COMPANY	Acetochlor
33270-12	TREMOR	Registered (02-May-2005)	UNITED SUPPLIERS, INC.	Acetochlor
33270-13	TREMOR AT	Registered (02-May-2005)	UNITED SUPPLIERS, INC.	Acetochlor
33270-13	TREMOR AT	Registered (02-May-2005)	UNITED SUPPLIERS, INC.	Atrazine
33270-14	TREMOR AT LITE	Registered (02-May-2005)	UNITED SUPPLIERS, INC.	Atrazine
33270-14	TREMOR AT LITE	Registered (02-May-2005)	UNITED SUPPLIERS, INC.	Acetochlor
34704-926	CADENCE HERBICIDE	Registered (17-May-2006)	LOVELAND PRODUCTS, INC.	Acetochlor
34704-938	DYNASHIELD ABAMECTIN	Registered (10-Jul-2006)	LOVELAND PRODUCTS, INC.	Abamectin
34704-950	CADENCE ATZ HERBICIDE	Registered (07-Aug-2006)	LOVELAND PRODUCTS, INC.	Atrazine
34704-950	CADENCE ATZ HERBICIDE	Registered (07-Aug-2006)	LOVELAND PRODUCTS, INC.	Acetochlor
34704-952	CADENCE LITE ATZ HERBICIDE	Registered (07-Aug-2006)	LOVELAND PRODUCTS, INC.	Acetochlor
34704-952	CADENCE LITE ATZ HERBICIDE	Registered (07-Aug-2006)	LOVELAND PRODUCTS, INC.	Atrazine
34704-1000	LPI LAMBDA-CYHALOTHRIN	Registered (27-May-2008)	LOVELAND PRODUCTS, INC.	lambda-Cyhalothrin
34704-1003	LPI THIFENSULFURON	Registered (30-Apr-2008)	LOVELAND PRODUCTS, INC.	Thifensulfuron
34704-1041	SLIDER ATZ	Registered (30-Sep-2009)	LOVELAND PRODUCTS, INC.	Atrazine
34704-1041	SLIDER ATZ	Registered (30-Sep-2009)	LOVELAND PRODUCTS, INC.	dimethenamide-P
34704-1042	SLIDER ATZ LITE	Registered (30-Sep-2009)	LOVELAND PRODUCTS, INC.	dimethenamide-P
34704-1042	SLIDER ATZ LITE	Registered (30-Sep-2009)	LOVELAND PRODUCTS, INC.	Atrazine
34704-1070	LPI S-METOLACHLOR +ATRAZINE	Registered (08-Jan-2013)	LOVELAND PRODUCTS, INC.	Atrazine
34704-1070	LPI S-METOLACHLOR +ATRAZINE	Registered (08-Jan-2013)	LOVELAND PRODUCTS, INC.	S-Metolachlor

Registration Number	Product Name	Registration Status	Company Name	Active Ingredient
34704-1072	LPI METOLACHLOR + ATRAZINE HERBICIDE	Registered (08-Jan-2013)	LOVELAND PRODUCTS, INC.	Atrazine
34704-1072	LPI METOLACHLOR + ATRAZINE HERBICIDE	Registered (08-Jan-2013)	LOVELAND PRODUCTS, INC.	Metolachlor
36029-10	WILCO ZINC AG BAIT	Registered (15-Jun-1973)	WILCO DISTRIBUTORS, INC.	Zinc phosphide (Zn3P2)
36029-23	GOPHER GETTER TYPE 2 AG BAIT BY WILCO	Registered (11-Jan-2007)	WILCO DISTRIBUTORS, INC.	Diphacinone
39096-2	FINTRON FISH TOXICANT KIT	Registered (27-Jan-1977)	AQUABIOTICS, INC.	Antimycin A
42750-106	ACETOCHLOR 4.3 + ATZ 1.7	Registered (14-Dec-2005)	ALBAUGH INC	Atrazine
42750-106	ACETOCHLOR 4.3 + ATZ 1.7	Registered (14-Dec-2005)	ALBAUGH INC	Acetochlor
42750-180	CLEAROUT PROMPT	Registered (25-Jan-2005)	ALBAUGH INC	Glyphosate-isopropylammonium
47000-17	ECONOMY'S VAPONA INSECTICIDE EMULSIBLE CONCENTRATE	Registered (01-Dec-1982)	CHEM-TECH, LTD.	Dichlorvos
47000-23	ECONOMY READY-TO-USE 0.5% VAPONA INSECTICIDE SPRAY OR FOGGIN	Registered (01-Dec-1982)	CHEM-TECH, LTD.	Dichlorvos
47000-52	VAPONA INSECTICIDE CONTAINS 1% VAPONA (DDVP)	Registered (01-Dec-1982)	CHEM-TECH, LTD.	Dichlorvos
47000-114	PROZAP BEEF & DAIRY RTU	Registered (27-Mar-1985)	CHEM-TECH, LTD.	Dichlorvos
47000-129	SELCO VAPONA 1% LIVESTOCK SPRAY READY TO USE	Registered (10-Nov-1987)	CHEM-TECH, LTD.	Dichlorvos
47000-135	SELCO VAPONA INSECTICIDE 2 EC	Registered (28-Apr-1989)	CHEM-TECH, LTD.	Dichlorvos
47000-136	CT VAPONA 0.5% INSECTICIDE	Registered (28-Apr-1989)	CHEM-TECH, LTD.	Dichlorvos
47000-138	VAPONA 20-E INSECTICIDE	Registered (30-Mar-1989)	CHEM-TECH, LTD.	Dichlorvos

Registration Number	Product Name	Registration Status	Company Name	Active Ingredient
48273-27	MARMAN HERBIQUAT HERBICIDE	Registered (02-Oct-1997)	MARMAN USA INC	Paraquat dichloride
53883-260	CSI LAMBDA 25 CS	Registered (14-Aug-2009)	CONTROL SOLUTIONS, INC.	lambda-Cyhalothrin
53883-264	CSI CHLORPYRIFOS CS	Registered (23-Dec-2009)	CONTROL SOLUTIONS, INC.	Chlorpyrifos
55467-13	TENKOZ ATRAZINE 4L HERBICIDE	Registered (23-Nov-2009)	TENKOZ INC	Atrazine
56228-3	ZINC PHOSPHIDE ON WHEAT FOR MOUSE CONTROL	Registered (13-Jan-1987)	U.S. DEPARTMENT OF AGRICULTURE	Zinc phosphide (Zn3P2)
56228-6	ZINC PHOSPHIDE CONCENTRATE FOR MOUSE CONTROL	Registered (13-Jan-1987)	U.S. DEPARTMENT OF AGRICULTURE	Zinc phosphide (Zn3P2)
56228-10	COMPOUND DRC-1339 CONCENTRATE-FEEDLOTS	Registered (13-Jan-1987)	U.S. DEPARTMENT OF AGRICULTURE	Starlicide
56228-11	0.5% STRYCHNINE MILO	Registered (13-Jan-1987)	U.S. DEPARTMENT OF AGRICULTURE	Strychnine
56228-12	0.5% STRYCHNINE POCKET GOPHER OAT BAIT FOR USE IN BURROW BUI	Registered (13-Jan-1987)	U.S. DEPARTMENT OF AGRICULTURE	Strychnine
56228-14	ZINC PHOSPHIDE ON OATS	Registered (13-Jan-1987)	U.S. DEPARTMENT OF AGRICULTURE	Zinc phosphide (Zn3P2)
56228-17	COMPOUND DRC-1339 CONCENTRATE - GULLS	Registered (13-Jan-1987)	U.S. DEPARTMENT OF AGRICULTURE	Starlicide
56228-35	DIPHACINONE-50: CONSERVATION PELLETTED RODENTICIDE BAIT FOR C	Registered (13-Jun-2007)	U.S. DEPARTMENT OF AGRICULTURE	Diphacinone
56228-41	GONACON - EQUINE	Registered (03-Jan-2013)	U.S. DEPARTMENT OF AGRICULTURE	Gonadotropin Releasing Hormone
60063-48	STALWART XTRA LITE HERBICIDE	Registered (24-Jan-2012)	SIPCAM AGRO USA, INC.	Atrazine
60063-48	STALWART XTRA LITE HERBICIDE	Registered (24-Jan-2012)	SIPCAM AGRO USA, INC.	Metolachlor

Registration Number	Product Name	Registration Status	Company Name	Active Ingredient
61282-45	RAMIK BROWN	Registered (16-Jul-1985)	HACCO, INC.	Diphacinone
62575-12	ATRAZINE 90 DF	Registered (20-Oct-2008)	BIESTERFELD U.S., INC.	Atrazine
62719-5	TORDON 101 MIXTURE	Registered (04-Dec-1989)	DOW AGROSCIENCES LLC	2,4-D, triisopropanolamine salt
62719-5	TORDON 101 MIXTURE	Registered (04-Dec-1989)	DOW AGROSCIENCES LLC	2-Pyridinecarboxylic acid, 4-amino-3,5,6-trichloro-, compd. with 1,1',1''-nitrilotris(2-propanol) (1:1)
62719-32	TELONE II	Registered (20-Jun-2003)	DOW AGROSCIENCES LLC	Telone
62719-480	SURMOUNT	Registered (09-Jun-2004)	DOW AGROSCIENCES LLC	2-Pyridinecarboxylic acid, 4-amino-3,5,6-trichloro-, compd. with 1,1',1''-nitrilotris(2-propanol) (1:1)
62719-480	SURMOUNT	Registered (09-Jun-2004)	DOW AGROSCIENCES LLC	Fluroxypyr 1-methylheptyl ester
62719-578	KERB 3.3 SC	Registered (18-Oct-2007)	DOW AGROSCIENCES LLC	Propyzamide
62719-646	GF-2836	Registered (07-Feb-2012)	DOW AGROSCIENCES LLC	Atrazine
62719-646	GF-2836	Registered (07-Feb-2012)	DOW AGROSCIENCES LLC	Acetochlor
62719-671	KEYSTONE NXT	Registered (03-Apr-2013)	DOW AGROSCIENCES LLC	Atrazine
62719-671	KEYSTONE NXT	Registered (03-Apr-2013)	DOW AGROSCIENCES LLC	Acetochlor
66222-63	THIONEX 3 EC INSECTICIDE	Registered (01-May-1973)	MAKHTESHIM AGAN OF NORTH AMERICA, INC.	Endosulfan
66222-229	MANA ATRAZINE 90DF	Registered (30-Dec-2010)	MAKHTESHIM AGAN OF NORTH AMERICA, INC.	Atrazine
66222-233	VULCAN	Registered (30-Nov-2011)	MAKHTESHIM AGAN OF NORTH AMERICA, INC.	Chlorpyrifos
66222-236	FANFARE 2 SC INSECTICIDE/MITICIDE	Registered (12-Jan-2012)	MAKHTESHIM AGAN OF NORTH AMERICA, INC.	Bifenthrin
66222-240	MANA DIFLUBENZURON 80WG	Registered (18-Jan-2012)	MAKHTESHIM AGAN OF NORTH AMERICA, INC.	Diflubenzuron
67517-8	STARLICIDE COMPLETE	Registered (04-Mar-1968)	PM RESOURCES INC.	Starlicide

Registration Number	Product Name	Registration Status	Company Name	Active Ingredient
67690-40	PROMITE 50WP	Registered (28-Sep-2005)	SEPRO CORPORATION	Fenbutatin-oxide
68387-7	ECO2FUME FUMIGANT GAS	Registered (03-Jun-2003)	CYTEC INDUSTRIES INC	Phosphine
70506-19	UP-CYDE PRO 2.0 EC TERMITICIDE/INSECTICIDE	Registered (06-Sep-2002)	UNITED PHOSPHORUS, INC	Cypermethrin
70506-231	INTRIGUE 8.4% EC INSECTICIDE	Registered (07-Jul-2010)	UNITED PHOSPHORUS, INC	Esfenvalerate
70506-239	BONFIRE HERBICIDE	Registered (09-Mar-2011)	UNITED PHOSPHORUS, INC	Paraquat dichloride
71096-14	ZINC PHOSPHIDE IN OAT PELLETS	Registered (04-Jun-2007)	OR-CAL, INC.	Zinc phosphide (Zn ₃ P ₂)
72500-11	KAPUT FIELD RODENT BAIT B	Registered (04-Feb-2008)	SCIMETRICS, LTD. CORPORATION	Imidacloprid
72500-11	KAPUT FIELD RODENT BAIT B	Registered (04-Feb-2008)	SCIMETRICS, LTD. CORPORATION	Diphacinone
72500-12	KAPUT-D BURROW BUILDER POCKET GOPHER BAIT	Registered (01-May-2007)	SCIMETRICS, LTD. CORPORATION	Diphacinone
72500-17	KAPUT RODENT FLEA CONTROL BAIT	Registered (26-Nov-2008)	SCIMETRICS, LTD. CORPORATION	Imidacloprid
72693-5	BIFENTHRIN 2EC	Registered (22-Nov-2011)	UNIVERSAL CROP PROTECTION ALLIANCE, LLC	Bifenthrin
72693-9	LAMBDA CY 1EC	Registered (13-Dec-2011)	UNIVERSAL CROP PROTECTION ALLIANCE, LLC	lambda-Cyhalothrin
72693-10	ABAMECTIN 0.15 EC	Registered (19-Dec-2011)	UNIVERSAL CROP PROTECTION ALLIANCE, LLC	Abamectin
72693-11	CHLORPYRIFOS 4E	Registered (22-Dec-2011)	UNIVERSAL CROP PROTECTION ALLIANCE, LLC	Chlorpyrifos
72693-12	ACETOCHLOR ATZ	Registered (10-Jan-2012)	UNIVERSAL CROP PROTECTION ALLIANCE, LLC	Acetochlor

Registration Number	Product Name	Registration Status	Company Name	Active Ingredient
72693-12	ACETOCHLOR ATZ	Registered (10-Jan-2012)	UNIVERSAL CROP PROTECTION ALLIANCE, LLC	Atrazine
72693-13	PARAQUAT 3.0	Registered (20-Dec-2011)	UNIVERSAL CROP PROTECTION ALLIANCE, LLC	Paraquat dichloride
72959-6	DEGESCH FUMI-CELL/FUMI-STRIP	Registered (06-Jun-1979)	D&D HOLDINGS, INC.	Magnesium phosphide
74530-54	KENDO 22.8 CS	Registered (16-Nov-2012)	HELM AGRO US, INC.	lambda-Cyhalothrin
80967-12	REVOLUTION G N GO HERBICIDE	Registered (14-Jun-2012)	MEY CORPORATION	Dicamba
80967-12	REVOLUTION G N GO HERBICIDE	Registered (14-Jun-2012)	MEY CORPORATION	Atrazine
80967-12	REVOLUTION G N GO HERBICIDE	Registered (14-Jun-2012)	MEY CORPORATION	Glyphosate
81880-17	NC-319 75WG T	Registered (31-Jan-2005)	CANYON GROUP LLC	Halosulfuron-methyl
81927-17	ALLIGARE PICLORAM K	Registered (23-Aug-2007)	ALLIGARE, LLC	Picloram-potassium
81927-18	ALLIGARE PICLORAM 22K	Registered (23-Aug-2007)	ALLIGARE, LLC	Picloram-potassium
82397-1	CHEM FISH REGULAR	Registered (12-Sep-1962)	TIFA INTERNATIONAL LLC	Rotenone
82397-1	CHEM FISH REGULAR	Registered (12-Sep-1962)	TIFA INTERNATIONAL LLC	Cube Resins other than rotenone
82397-2	CHEM-FISH SYNERGIZED	Registered (24-Oct-1962)	TIFA INTERNATIONAL LLC	Rotenone
82397-2	CHEM-FISH SYNERGIZED	Registered (24-Oct-1962)	TIFA INTERNATIONAL LLC	Piperonyl butoxide
82397-2	CHEM-FISH SYNERGIZED	Registered (24-Oct-1962)	TIFA INTERNATIONAL LLC	Cube Resins other than rotenone
82557-1	PARAQUAT SL HERBICIDE	Registered (25-Jan-2006)	SINON USA INC.	Paraquat dichloride
82557-2	METHOMYL 29 SL INSECTICIDE	Registered (06-Aug-2012)	SINON USA INC.	Methomyl
82557-3	METHOMYL 90 WSP	Registered (06-Aug-2012)	SINON USA INC.	Methomyl
82866-1	PARAQUAT 3SL HERICIDE	Registered (21-Jun-2012)	GREENLEAF CHEMICAL LLC	Paraquat dichloride
83222-20	CPF 4E	Registered (15-Dec-2009)	DIRECT AG SOURCE, LLC	Chlorpyrifos
83222-40	IMIDACLOPRID PLUS BIFENTHRIN 1 + 1 SC	Registered (25-Jun-2012)	DIRECT AG SOURCE, LLC	Bifenthrin

Registration Number	Product Name	Registration Status	Company Name	Active Ingredient
83222-40	IMIDACLOPRID PLUS BIFENTHRIN 1 + 1 SC	Registered (25-Jun-2012)	DIRECT AG SOURCE, LLC	Imidacloprid
83222-42	LAMBDA-CY AG	Registered (22-Jun-2012)	DIRECT AG SOURCE, LLC	lambda-Cyhalothrin
83529-27	PARAQUAT CONCENTRATE	Registered (24-Mar-2011)	SHARDA USA LLC	Paraquat dichloride
84229-20	CHLORPYRIFOS 4 EC	Registered (21-Jan-2011)	TIDE INTERNATIONAL, USA, INC.	Chlorpyrifos
84575-1	GAT LAMBDA 25 CS	Registered (14-Aug-2009)	GAT MICROENCAPSULATION AG	lambda-Cyhalothrin
84575-3	GAT CHLORPYRIFOS CS	Registered (23-Dec-2009)	GAT MICROENCAPSULATION AG	Chlorpyrifos
84930-7	ARC-CHLOR 4# AG	Registered (29-Oct-2008)	ARCANA, LLC	Chlorpyrifos
84930-23	ARC-METOLAZINE HERBICIDE	Registered (28-Dec-2010)	ARCANA, LLC	Atrazine
84930-23	ARC-METOLAZINE HERBICIDE	Registered (28-Dec-2010)	ARCANA, LLC	Metolachlor
84930-24	ARC-ATZ 4L HERBICIDE	Registered (21-Dec-2010)	ARCANA, LLC	Atrazine
84930-30	ARC ABAMECTIN 0.15 EC INSECTICIDE	Registered (15-Nov-2010)	ARCANA, LLC	Abamectin
84930-32	ARC-LAMCY 13 EC INSECTICIDE	Registered (09-Feb-2011)	ARCANA, LLC	lambda-Cyhalothrin
84930-35	ARC-TRAZINE 4L HERBICIDE	Registered (13-Oct-2011)	ARCANA, LLC	Atrazine
86363-3	KT CHLORPYRIFOS 4E	Registered (07-Dec-2009)	KAIZEN TECHNOLOGIES, LLC	Chlorpyrifos
86363-11	BIFENCHLOR	Registered (13-Sep-2011)	KAIZEN TECHNOLOGIES, LLC	Chlorpyrifos
86363-11	BIFENCHLOR	Registered (13-Sep-2011)	KAIZEN TECHNOLOGIES, LLC	Bifenthrin
86833-1	ZONASTAT-H	Registered (30-Jan-2012)	HUMANE SOCIETY OF THE UNITED STATES	Glycoprotein (ZP3 and PZP)
86869-5	LAMBDA 1 EC	Registered (30-Mar-2012)	SELECT SOURCE, LLC	lambda-Cyhalothrin
87276-23	EQUIL PYRIFOS	Registered (02-Oct-2012)	ENVINCIO LLC	Chlorpyrifos

Registration Number	Product Name	Registration Status	Company Name	Active Ingredient
87290-3	WILLOWOOD PRONAMIDE 50WSP	Registered (06-May-2010)	WILLOWOOD, LLC	Propyzamide
87290-22	WILLOWOOD PRONAMIDE 3.3SC	Registered (23-Jun-2011)	WILLOWOOD, LLC	Propyzamide
87994-1	MBC SOIL FUMIGANT	Registered (23-Jun-1965)	TRIENT AG GROUP INC	Methyl bromide (NO INERT USE)
87994-2	MBC-33	Registered (10-Feb-1969)	TRIENT AG GROUP INC	Methyl bromide (NO INERT USE)
87994-2	MBC-33	Registered (10-Feb-1969)	TRIENT AG GROUP INC	Chloropicrin
87994-5	STRIKE 100CP FUMIGANT	Registered (17-Apr-2012)	TRIENT AG GROUP INC	Chloropicrin
87994-6	STRIKE 85CP FUMIGANT	Registered (17-Apr-2012)	TRIENT AG GROUP INC	Chloropicrin
89167-10	AX ATZ 4L	Registered (18-Oct-2012)	AXION AG PRODUCTS, LLC	Atrazine
89167-11	AX ABAMECTIN 0.15 EC INSECTICIDE	Registered (09-Nov-2012)	AXION AG PRODUCTS, LLC	Abamectin
89168-16	LIBERTY LAMBDA CY 1EC	Registered (19-Nov-2012)	LIBERTY CROP PROTECTION, LLC	lambda-Cyhalothrin
89168-20	LIBERTY CHLORPYRIFOS BIFENTHRIN	Registered (19-Dec-2012)	LIBERTY CROP PROTECTION, LLC	Chlorpyrifos
89168-20	LIBERTY CHLORPYRIFOS BIFENTHRIN	Registered (19-Dec-2012)	LIBERTY CROP PROTECTION, LLC	Bifenthrin



Planned Parenthood of Hawaii

To: Hawaii State Senate Committees on Health and Energy & Environment
Hearing Date/Time: Thursday, February 12, 2015, 3:35 p.m.
Place: Hawaii State Capitol, Rm. 414
Re: Testimony of Planned Parenthood of Hawaii in support of S.B. 801

Dear Chairs Green and Gabbard and members of the Committees,

Planned Parenthood of Hawaii writes in support of S.B. 801, which seeks to establish notice and reporting requirements for any entity or person that uses restricted use pesticides under certain conditions.

Planned Parenthood of Hawaii is dedicated to providing Hawaii's people with high quality, affordable and confidential sexual and reproductive health care, education, and advocacy. To that end, we support increased pesticide regulation because it will help to ensure that pesticides are used in a safe manner and at safe levels and help to mitigate the impact of pesticides on reproductive health.

As pesticide use is widespread across Hawaii, we must be vigilant in preventing harmful exposures before they occur. Please note that women of reproductive age and both male and female farmworkers and those who work with pesticides are particularly vulnerable to excessive exposure. According to a recent study from the University of California, San Francisco, pesticide exposure can harm the reproductive health and function of adult females during all developmental stages and has been associated with male sterility, spontaneous abortion, diminished fetal growth and survival and childhood and adult cancers.¹ Increasing pesticide regulation will serve to reduce the risks associated with pesticide exposure and promote the overall public health of our communities.

Thank you for this opportunity to testify in support.

Sincerely,

Laurie Field
Director of Public Affairs & Government Relations

¹ See, e.g., University of California, San Francisco Program on Reproductive Health and the Environment, *Pesticides Matter, A Primer for Reproductive Health Physicians* (Dec., 2011), available at http://prhe.ucsf.edu/prhe/pdfs/pesticidesmatter_whitepaper.pdf.

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SENATE COMMITTEES ON HEALTH and ENERGY AND ENVIRONMENT

Testimony on Senate Bill 801

RELATING TO THE HEALTH IMPACT OF PESTICIDES

February 12, 2015

Room 414

3:35 PM

Aloha Chairs Green and Gabbard, Vice Chair Wakai, and Members of the Committees:

I am Bennette Misalucha, the Executive Director of the Hawaii Crop Improvement Association (HCIA). HCIA is a Hawaii-based non-profit organization that promotes ag bio tech to help farmers and communities succeed. Through education, collaboration and advocacy, we work to ensure a safe and sustainable food supply, support responsible farming practices and build a healthy state economy.

HCIA respectfully opposes Senate Bill 801.

Although the term pesticide has become a dirty word, pesticides are used beneficially throughout the world and in Hawaii to control pests and disease carriers, such as mosquitoes, ticks, and rodents. They are used in our drinking water to prevent disease and in our watersheds to control invasive species. Pesticides are also used in agriculture to control weeds, insect infestation, and diseases that can completely destroy a crop. Even organic agriculture uses pesticides.

Our member companies are very aware of their responsibility to use pesticides properly and they take this duty very seriously. The many employees of HCIA members are likely people you know as friends, relatives, and neighbors who contribute to communities throughout the Islands where we farm. We have been a part of these communities and local economies for over 50 years.

Our farms use trained employees who are experienced in pesticide application and apply pesticides only when necessary. The safety of our employees and the community is of utmost importance to us and we follow the strict federal and State pesticide laws and regulations carefully. We are regularly inspected by the State Department of Agriculture Pesticide Branch whose duty is to enforce these laws.

The U. S. Environmental Protection Agency evaluates and registers pesticides to ensure that they will not harm people, non-target species, or the environment. Based on thorough risk assessments, EPA determines *if* a pesticide can be sold and used. It dictates where a pesticide can be used, the amount, frequency, and timing of its use; and how it will be stored or discarded. EPA determines the conditions under which the pesticide can be used based upon ongoing research of any possible health or environmental effect.

We disagree with the idea that there are wide-spread problems associated with pesticide applications in the state, and the need for arbitrary restrictions that will disproportionately impact farmers. Recent incidents involving odors at schools were found to be a result of improper pesticide use by neighboring homeowners or the schools themselves. SB 801 would not prevent these types of occurrences or even affect those pesticide users because they would not be subject to the bill's requirements.

This bill and others introduced this session have been developed by non-farmers who do not understand existing pesticide regulations and enforcement nor farmers' need to control insects, weeds, and disease. The bills are designed to unfairly target one segment of Hawaii's pesticide users - our member company farmers who grow genetically modified crops. The well-funded national organizations that are promoting this type of legislation here and across the country hope to set a precedent in Hawaii and make this farming as difficult as possible. Their claims that similar laws have been adopted across the country, in "33 states", are simply not true. A closer look at the laws they refer to reveals that they are concerned with requirements for schools' own procedures to use Integrated Pest Management; not pesticide use on farms.

These measures undermine EPA's role and will harm Hawaii farmers without providing increased safety. Before any additional State or county pesticide restrictions are imposed, they should be determined to be justifiable and necessary. The Hawaii Department of Agriculture, not the Department of Health, nor the individual counties, already has the authority, expertise, and resources to promulgate additional pesticide regulations to protect the public if it determines that further regulations are warranted. Mandatory disclosure and notification requirements will not improve public safety, while providing counties with the authority to individually regulate pesticides will lead to confusion and inequity for growers in counties where more onerous ordinances are passed.

We respectfully request that this bill be held. Rather than create new and arbitrary laws that will make it more difficult for farmers to stay in business in Hawaii, we support the concepts in other pesticide-related bills introduced this session, such as SB 734, that would give the HDOA and the University of Hawaii increased funding and capacity to more effectively perform their roles, including educating growers and others to ensure proper pesticide use, assistance in implementation of pesticide drift reduction strategies, and greater enforcement capability. We believe that a strong state pesticide regulatory program is essential to assuring the public that pesticide products are used properly.

Thank you for the opportunity to provide testimony in opposition to SB 801.

From: mailinglist@capitol.hawaii.gov
To: [HTHTestimony](#)
Cc: littlelongon@yahoo.com
Subject: Submitted testimony for SB801 on Feb 12, 2015 15:35PM
Date: Sunday, February 08, 2015 12:31:49 AM

SB801

Submitted on: 2/8/2015

Testimony for HTH/ENE on Feb 12, 2015 15:35PM in Conference Room 414

Submitted By	Organization	Testifier Position	Present at Hearing
Miles Greenberg	Individual	Support	No

Comments: Dear Honorable Chair Green, Vice chair Wakai and Health Committee members, As the counties had made efforts to report and notify the public of the applications of RUP (restricted use pesticides) the higher courts overturned the county measures state wide. Any means necessary to rein in the use of RUP's that are particularly toxic in even small quantities is a move in the right direction. While pesticide exposure is harmful to our youth's developing bodies, RUP's pose even greater threats. What is the compelling reason to use these RUP's? Are there no other alternatives? Let this measure ensure that if RUP's must be used let there be strict oversight on their use with equally strict penalties for misuse or improper reporting. Please SUPPORT SB801 and protect the aina!

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email webmaster@capitol.hawaii.gov

From: mailinglist@capitol.hawaii.gov
To: [HTHTestimony](#)
Cc: slwsurfing@yahoo.com
Subject: Submitted testimony for SB801 on Feb 12, 2015 15:35PM
Date: Monday, February 09, 2015 1:52:21 PM

SB801

Submitted on: 2/9/2015

Testimony for HTH/ENE on Feb 12, 2015 15:35PM in Conference Room 414

Submitted By	Organization	Testifier Position	Present at Hearing
sharon	Individual	Support	No

Comments: Under ALL conditions ~ tell me if you're going to poison me please!

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

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TESTIMONY IN SUPPORT OF SB801

Hawaii State Senate

Thursday, February 12, 2015

State Conference Room 414 at 3:35p

Submitted by Lynn B. Wilson, PhD

Chair & Committee Members of the Senate Committees on Health, Energy & Environment

Dear Senators:

I am a cultural anthropologist who has invested over 20 years in supporting the health and well being of young children and their families in Hawaii by partnering with public and private agencies including the Hawaii State Department of Health, UH JABSOM Department of Pediatrics, American Academy of Pediatrics/Hawaii Chapter, community health centers, and early childhood organizations in the areas of health, early learning, family engagement and support. I have also co-founded small businesses with Sharon Taba, MEd, Webfish Pacific, LLC & Same Small Boat Productions, LLC, that have received federal, state, and foundation support to develop projects supporting young children and their families.

I am writing to urge you to support **SB801: Relating to the Health Impact of Pesticides**, introduced by Senators Green and Ruderman.

This proposed law aims to protect communities across the state by establishing mandatory notice, reporting, and use requirements when pesticides are applied outdoors.

Research clearly demonstrates that even low exposures to environmental toxins, such as pesticides (including fumigants, herbicides, pesticides, etc.), put healthy brain development in fetuses and young children at tremendous risk. Please see attached policy statements from the American Academy of Pediatrics and the American College of Obstetricians and Gynecologists.

In Hawaii, where agrichemical companies are using increasing amounts of pesticides and increasingly using multiple pesticides, acute and chronic exposure can be due to pesticide drift, particulate dust, water we drink and the water we swim in, jeopardizing the health of pregnant women and young children as well as the environment itself.

It is particularly large chemical companies that are conducting “experiments,” but not just on their seeds and the various, multiple pesticides they use in seed development. Their outdoor laboratories are also experimenting on the people and the islands of Hawaii- introducing a combination of killing chemicals year round into our islands that research shows can negatively impact human motor-neuron systems, increase autism, and result in endocrine disruption, with dramatic effects on vulnerable populations especially pregnant women and children.

To better protect the people and island environments of Hawaii, we need to learn from these corporations, from their past actions, because large chemical companies do not have a positive track record in protecting the communities in which they work. For example, look at the litany of disasters that have taken place across the country for Monsanto, just one of the companies operating in Hawaii: (documented largely after the contaminations occurred by U.S. EPA documents 1997-2012, see end references)

- Monsanto in Augusta, Georgia: Superfund-listed in 1984 for arsenic-laden waste and sludge contributing to groundwater contamination.¹
- Monsanto in Soda Springs, Idaho: Superfund listed in 1990 for arsenic, cadmium and other toxins.²
- Monsanto in Sauget, Illinois: Two Superfund sites are still being cleaned up after the initial cleanup in 1992; this plant produced 99% of all PCBs in the United States.³
- Monsanto in Anniston, Alabama: Listed under Superfund Alternative Approach in 2000 for extensive PCB contamination over six decades, a city characterized as one of the most polluted places in America.^{4,5}
- Solutia plants, ranked #1 in Texas and #4 in Massachusetts for the EPA's top contaminated sites in 2007.⁶

I believe “Good Neighbor” reporting is not enough to protect Hawaii’s families and young children, not enough to protect Hawaii’s lands, animals, and waters—these reports lack specifics of when and where and in what combination pesticides are applied, do not protect families and communities by establishing effective buffer zones, and do not inform surrounding communities in a timely way.

Therefore, it is critical to require timely and comprehensive use notifications for pre-application, application, and annual reports of use of restricted use pesticides. This bill aims to protect our environment and our residents by requiring public warnings of pesticide outdoor application, including trade names of pesticides used, names of active ingredients, potential hazard precautionary statements, and emergency contacts in case of pesticide poisoning. Importantly, this bill does not prohibit governing bodies at the county level from regulating pesticide disclosure, notification, and use from regulating pesticides in a more stringent manner.

Thank you for this opportunity to ask your support of **SB801**. It’s a critical time to pay attention to the “upstream” solutions that will play such a prominent role in positively influencing the health and well-being of Hawaii’s communities, families and young children for generations to come.

With Respect & Aloha,

Lynn B. Wilson, PhD
94-870 Lumiauau Street, B204
Waipahu, HI 96797

References:

- ¹ EPA. "Monsanto Corp. (Augusta Plant)." Site Summary Profile. Updated February 9, 2012. Available at <http://www.epa.gov/region4/superfund/sites/npl/georgia/monaugpa.html>
- ² EPA. "Superfund Record of Decision: Monsanto Chemical Co. (Soda Springs Plant)." April 30, 1997.
- ³ EPA. "Superfund Update- Cleanup Progressing and Future Plans: Saugnet Area 1 and Area 2 Superfund Sites." November 2009 at 1 to 2; DHHS (2000) at 481.
- ⁴ EPA. EPA Fact Sheet: Anniston Site. February 13, 2001; EPA. "Anniston PCB Site." Updated January 3, 2012. Available at <http://epa.gov/region4/superfund/sites/npl/alabama/anpcbstal>; EPA. "Superfund Alternative Approach." Updated August 2, 2012. Available at <http://www.epa.gov/oecaerth/cleanup/superfund/saa.html>
- ⁵ Grunwald, Michael. "Monsanto Hid Decades of Pollution." The Washington Post. January 1, 2002 at A01.
- ⁶ AAA66 EPA. [Press Release]. "Community Specific Chemical Release Data Available for Massachusetts-New England continues trend of lower releases to air, land, and water." March 20, 2009; EPA [Press Release]. "EPA Reports Toxic Releases to Air, Water and Land in Texas in 2007." March 19, 2009.



POLICY STATEMENT

Pesticide Exposure in Children

COUNCIL ON ENVIRONMENTAL HEALTH

KEY WORDS

pesticides, toxicity, children, pest control, integrated pest management

ABBREVIATIONS

EPA—Environmental Protection Agency

IPM—integrated pest management

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abstract

FREE

This statement presents the position of the American Academy of Pediatrics on pesticides. Pesticides are a collective term for chemicals intended to kill unwanted insects, plants, molds, and rodents. Children encounter pesticides daily and have unique susceptibilities to their potential toxicity. Acute poisoning risks are clear, and understanding of chronic health implications from both acute and chronic exposure are emerging. Epidemiologic evidence demonstrates associations between early life exposure to pesticides and pediatric cancers, decreased cognitive function, and behavioral problems. Related animal toxicology studies provide supportive biological plausibility for these findings. Recognizing and reducing problematic exposures will require attention to current inadequacies in medical training, public health tracking, and regulatory action on pesticides. Ongoing research describing toxicologic vulnerabilities and exposure factors across the life span are needed to inform regulatory needs and appropriate interventions. Policies that promote integrated pest management, comprehensive pesticide labeling, and marketing practices that incorporate child health considerations will enhance safe use. *Pediatrics* 2012;130:e1757–e1763

INTRODUCTION

Pesticides represent a large group of products designed to kill or harm living organisms from insects to rodents to unwanted plants or animals (eg, rodents), making them inherently toxic (Table 1). Beyond acute poisoning, the influences of low-level exposures on child health are of increasing concern. This policy statement presents the position of the American Academy of Pediatrics on exposure to these products. It was developed in conjunction with a technical report that provides a thorough review of topics presented here: steps that pediatricians should take to identify pesticide poisoning, evaluate patients for pesticide-related illness, provide appropriate treatment, and prevent unnecessary exposure and poisoning.¹ Recommendations for a regulatory agenda are provided as well, recognizing the role of federal agencies in ensuring the safety of children while balancing the positive attributes of pesticides. Repellents reviewed previously (eg, N,N-diethyl-meta-toluamide, commonly known as DEET; picaridin) are not discussed.²

SOURCES AND MECHANISMS OF EXPOSURE

Children encounter pesticides daily in air, food, dust, and soil and on surfaces through home and public lawn or garden application, household insecticide use, application to pets, and agricultural product

TABLE 1 Categories of Pesticides and Major Classes

Pesticide category	Major Classes	Examples
Insecticides	Organophosphates	Malathion, methyl parathion, acephate
	Carbamates	Aldicarb, carbaryl, methomyl, propoxur
	Pyrethroids/pyrethrins	Cypermethrin, fenvalerate, permethrin
	Organochlorines	Lindane
	Neonicotinoids	Imidacloprid
Herbicides	N-phenylpyrazoles	Fipronil
	Phosphonates	Glyphosate
	Chlorophenoxy herbicides	2,4-D, mecoprop
	Dipyridyl herbicides	Diquat, paraquat
Rodenticides	Nonselective	Sodium chlorate
	Anticoagulants	Warfarin, brodifacoum
	Convulsants	Strychnine
	Metabolic poison	Sodium fluoroacetate
Fungicides	Inorganic compounds	Aluminum phosphide
	Thiocarbamates	Metam-sodium
	Triazoles	Fluconazole, myclobutanil, triadimefon
Fumigants	Strobilurins	Pyraclostrobin, picoxystrobin
	Halogenated organic	Methyl bromide, Chloropicrin
	Organic	Carbon disulfide, Hydrogen cyanide, Naphthalene
Miscellaneous	Inorganic	Phosphine
	Arsenicals	Lead arsenate, chromated copper arsenate, arsenic trioxide
	Pyridine	4-aminopyridine

residues.^{3–9} For many children, diet may be the most influential source, as illustrated by an intervention study that placed children on an organic diet (produced without pesticide) and observed drastic and immediate decrease in urinary excretion of pesticide metabolites.¹⁰ In agricultural settings, pesticide spray drift is important for residences near treated crops or by take-home exposure on clothing and footwear of agricultural workers.^{9,11,12} Teen workers may have occupational exposures on the farm or in lawn care.^{13–15} Heavy use of pesticides may also occur in urban pest control.¹⁶

Most serious acute poisoning occurs after unintentional ingestion, although poisoning may also follow inhalational exposure (particularly from fumigants) or significant dermal exposure.¹⁷

ACUTE PESTICIDE TOXICITY

Clinical Signs and Symptoms

High-dose pesticide exposure may result in immediate, devastating, even lethal consequences. Table 2 summarizes features of clinical toxicity for

the major pesticides classes. It highlights the similarities of common classes of pesticides (eg, organophosphates, carbamates, and pyrethroids) and underscores the importance of discriminating among them because treatment modalities differ. Having an index of suspicion based on familiarity with toxic mechanisms and taking an environmental history provides the opportunity for discerning a pesticide's role in clinical decision-making.¹⁸ Pediatric care providers have a poor track record for recognition of acute pesticide poisoning.^{19–21} This reflects their self-reported lack of medical education and self-efficacy on the topic.^{22–26} More in-depth review of acute toxicity and management can be found in the accompanying technical report or recommended resources in Table 3.

The local or regional poison control center plays an important role as a resource for any suspected pesticide poisoning.

There is no current reliable way to determine the incidence of pesticide exposure and illness in US children. Existing data systems, such as the American Association of Poison Control Centers'

National Poison Data System or the National Institute for Occupational Safety and Health's Sentinel Event Notification System for Occupational Risks,^{27,28} capture limited information about acute poisoning and trends over time.

There is also no national systematic reporting on the use of pesticides by consumers or licensed professionals. The last national survey of consumer pesticide use in homes and gardens was in 1993 (Research Triangle Institute study).²⁹

Improved physician education, accessible and reliable biomarkers, and better diagnostic testing methods to readily identify suspected pesticide illness would significantly improve reporting and surveillance. Such tools would be equally important in improving clinical decision-making and reassuring families if pesticides can be eliminated from the differential diagnosis.

The Pesticide Label

The pesticide label contains information for understanding and preventing acute health consequences: the active ingredient; signal words identifying acute toxicity potential; US Environmental Protection Agency (EPA) registration number; directions for use, including protective equipment recommendations, storage, and disposal; and manufacturer's contact information.³⁰ Basic first aid advice is provided, and some labels contain a "note for physicians" with specific relevant medical information. The label does not specify the pesticide class or "other"/"inert" ingredients that may have significant toxicity and can account for up to 99% of the product.

Chronic toxicity information is not included, and labels are predominantly available in English. There is significant use of illegal pesticides (especially in immigrant communities), off-label use, and overuse, underscoring the importance of education, monitoring, and enforcement.³¹

TABLE 2 Common Pesticides: Signs, Symptoms, and Management Considerations^a

Class	Acute Signs and Symptoms	Clinical Considerations
Organophosphate and N-methyl carbamate insecticides	<ul style="list-style-type: none"> • Headache, nausea, vomiting, abdominal pain, and dizziness • Hypersecretion: sweating, salivation, lacrimation, rhinorrhea, diarrhea, and bronchorrhea • Muscle fasciculation and weakness, and respiratory symptoms (bronchospasm, cough, wheezing, and respiratory depression) • Bradycardia, although early on, tachycardia may be present • Miosis • Central nervous system: respiratory depression, lethargy, coma, and seizures 	<ul style="list-style-type: none"> • Obtain red blood cell and plasma cholinesterase levels • Atropine is primary antidote • Pralidoxime is also an antidote for organophosphate and acts as a cholinesterase reactivator • Because carbamates generally produce a reversible cholinesterase inhibition, pralidoxime is not indicated in these poisonings
Pyrethroid insecticides	<ul style="list-style-type: none"> • Similar findings found in organophosphates including the hypersecretion, muscle fasciculation, respiratory symptoms, and seizures • Headache, fatigue, vomiting, diarrhea, and irritability • Dermal: skin irritation and paresthesia 	<ul style="list-style-type: none"> • At times have been mistaken for acute organophosphate or carbamate poisoning • Symptomatic treatment • Treatment with high doses of atropine may yield significant adverse results • Vitamin E oil for dermal symptoms • Supportive care
Neonicotinoid insecticides	<ul style="list-style-type: none"> • Disorientation, severe agitation, drowsiness, dizziness, weakness, and in some situations, loss of consciousness • Vomiting, sore throat, abdominal pain • Ulcerations in upper gastrointestinal tract 	<ul style="list-style-type: none"> • Consider sedation for severe agitation • No available antidote • No available diagnostic test • Supportive care • No available antidote • No available diagnostic test
Fipronil (N-phenylpyrazole insecticides)	<ul style="list-style-type: none"> • Nausea and vomiting • Aphthous ulcers • Altered mental status and coma • Seizures 	<ul style="list-style-type: none"> • Control acute seizures with lorazepam
Lindane (organochlorine insecticide)	<ul style="list-style-type: none"> • Central nervous system: mental status changes and seizures • Paresthesia, tremor, ataxia and hyperreflexia 	<ul style="list-style-type: none"> • Lindane blood level available as send out • Supportive care • Pulmonary effects may be secondary to organic solvent
Glyphosate (phosphonate herbicides)	<ul style="list-style-type: none"> • Nausea and vomiting • Aspiration pneumonia type syndrome • Hypotension, altered mental status, and oliguria in severe cases • Pulmonary effects may in fact be secondary to organic solvent 	<ul style="list-style-type: none"> • Consider urine alkalinization with sodium bicarbonate in IV fluids
Chlorophenoxy herbicides	<ul style="list-style-type: none"> • Skin and mucous membrane irritation • Vomiting, diarrhea, headache, confusion • Metabolic acidosis is the hallmark • Renal failure, hyperkalemia, and hypocalcemia • Probable carcinogen 	<ul style="list-style-type: none"> • Consider PT (international normalized ratio)
Rodenticides (long-acting anticoagulants)	<ul style="list-style-type: none"> • Bleeding: gums, nose, and other mucous membrane sites • Bruising 	<ul style="list-style-type: none"> • Observation may be appropriate for some clinical scenarios in which it is not clear a child even ingested the agent • Vitamin K indicated for active bleeding (IV vitamin K) or for elevated PT (oral vitamin K)

IV, intravenous; PT, prothrombin time.

^a Expanded version of this table is available in the accompanying technical report.¹

CHRONIC EFFECTS

Dosing experiments in animals clearly demonstrate the acute and chronic toxicity potential of multiple pesticides. Many pesticide chemicals are classified by the US EPA as carcinogens. The

past decade has seen an expansion of the epidemiologic evidence base supporting adverse effects after acute and chronic pesticide exposure in children. This includes increasingly sophisticated studies addressing

combined exposures and genetic susceptibility.¹

Chronic toxicity end points identified in epidemiologic studies include adverse birth outcomes including preterm birth, low birth weight, and congenital

TABLE 3 Pesticide and Child Health Resources for the Pediatrician

Topic/Resource	Additional Information	Contact Information
Management of acute pesticide poisoning <i>Recognition and Management of Pesticide Poisonings</i>	Print: fifth (1999) is available in Spanish, English, 6th edition available 2013	http://www.epa.gov/pesticides/safety/healthcare/handbook/handbook.htm 1 (800) 222-1222
Regional Poison Control Centers	Cooperative agreement between Oregon State University and the US EPA. NPMMP provides informational assistance by E-mail in the assessment of human exposure to pesticides	npmmp@oregonstate.edu or by fax at (541) 737-9047
Chronic exposure information and specialty consultation The National Pesticide Medical Monitoring Program (NPMMP)	Coordinated by the Association of Occupational and Environmental Clinics to provide regional academically based free consultation for health care providers	www.aococ.org/PEHSU.htm ; toll-free telephone number (888) 347-AOEC (extension 2632)
Pediatric Environmental Health Specialty Units (PEHSUs)		www.epa.gov/oppfead1/Publications/Cit_Guide/citguide.pdf
Resources for safer approaches to pest control US EPA <i>Citizens Guide to Pest Control and Pesticide Safety</i>	Consumer information documents <ul style="list-style-type: none"> • Household pest control • Alternatives to chemical pesticides • How to choose pesticides • How to use, store, and dispose of them safely • How to prevent pesticide poisoning • How to choose a pest-control company Recommended safest approaches and examples of programs Information on IPM approaches for common home and garden pests	www.epa.gov/pesticides/controlling/index.htm www.ipm.ucdavis.edu
Controlling pests The University of California Integrative Pest Management Program		www.niehs.nih.gov/research/supported/centers/prevention
Other resources National research programs addressing children's health and pesticides	<ul style="list-style-type: none"> • NIEHS/EPA Centers for Children's Environmental Health & Disease Prevention Research • The National Children's Study Pesticide product labels	www.nationalchildrensstudy.gov/Pages/default.aspx www.epa.gov/pesticides/regulating/labels/product-labels.htm#projects
US EPA		http://toxtown.nlm.nih.gov/text_version/chemicals.php?id=23
The National Library of Medicine "Tox Town"	Section on pesticides that includes a comprehensive and well-organized list of web link resources on pesticides	

anomalies, pediatric cancers, neuro-behavioral and cognitive deficits, and asthma. These are reviewed in the accompanying technical report. The evidence base is most robust for associations to pediatric cancer and adverse neurodevelopment. Multiple case-control studies and evidence reviews support a role for insecticides in risk of brain tumors and acute lymphocytic leukemia. Prospective contemporary birth cohort studies in the United States link early-life exposure to organophosphate insecticides with reductions in IQ and abnormal behaviors associated with attention-deficit/hyperactivity disorder and autism. The need to better understand the health implications of ongoing pesticide use practices on child health has benefited from these observational epidemiologic data.³²

EXPOSURE PREVENTION APPROACHES

The concerning and expanding evidence base of chronic health consequences of pesticide exposure underscores the importance of efforts aimed at decreasing exposure.

Integrated pest management (IPM) is an established but undersupported approach to pest control designed to minimize and, in some cases, replace the use of pesticide chemicals while achieving acceptable control of pest populations.³³ IPM programs and knowledge have been implemented in agriculture and to address weeds and pest control in residential settings and schools, commercial structures, lawn and turf, and community gardens. Reliable resources are available from the US EPA and University of California—Davis (Table 3). Other local policy approaches in use are posting warning signs of pesticide use, restricting spray zone buffers at schools, or restricting specific types of pesticide products in schools. Pediatricians can

play a role in promotion of development of model programs and practices in the communities and schools of their patients.

RECOMMENDATIONS

Three overarching principles can be identified: (1) pesticide exposures are common and cause both acute and chronic effects; (2) pediatricians need to be knowledgeable in pesticide identification, counseling, and management; and (3) governmental actions to improve pesticide safety are needed. Whenever new public policy is developed or existing policy is revised, the wide range of consequences of pesticide use on children and their families should be considered. The American Academy of Pediatrics, through its chapters, committees, councils, sections, and staff, can provide information and support for public policy advocacy efforts. See <http://www.aap.org/advocacy.html> for additional information or contact chapter leadership.

Recommendations to Pediatricians

1. Acute exposures: become familiar with the clinical signs and symptoms of acute intoxication from the major types of pesticides. Be able to translate clinical knowledge about pesticide hazards into an appropriate exposure history for pesticide poisoning.
2. Chronic exposures: become familiar with the subclinical effects of chronic exposures and routes of exposures from the major types of pesticides.
3. Resource identification: know locally available resources for acute toxicity management and chronic low-dose exposure (see Table 3).
4. Pesticide labeling knowledge: Understand the usefulness and limitations of pesticide chemical information on pesticide product labels.
5. Counseling: Ask parents about pesticide use in or around the home to help determine the need for providing targeted anticipatory guidance. Recommend use of minimal-risk products, safe storage practices, and application of IPM (least toxic methods), whenever possible.

6. Advocacy: work with schools and governmental agencies to advocate for application of least toxic pesticides by using IPM principles. Promote community right-to-know procedures when pesticide spraying occurs in public areas.

Recommendations to Government

1. Marketing: ensure that pesticide products as marketed are not attractive to children.
2. Labeling: include chemical ingredient identity on the label and/or the manufacturer's Web site for all product constituents, including inert ingredients, carriers, and solvents. Include a label section specific to "Risks to children," which informs users whether there is evidence that the active or inert ingredients have any known chronic or developmental health concerns for children. Enforce labeling practices that ensure users have adequate information on product contents, acute and chronic toxicity potential, and emergency information. Consider printing or making available labels in Spanish in addition to English.
3. Exposure reduction: set goal to reduce exposure overall. Promote application methods and practices that minimize children's exposure, such as using bait stations and gels, advising against overuse of pediculicides. Promote education regarding proper storage of product.
4. Reporting: make pesticide-related suspected poisoning universally reportable and support a systematic central repository of such incidents to optimize national surveillance.
5. Exportation: aid in identification of least toxic alternatives to pesticide use internationally, and unless safer alternatives are not available or are impossible to implement, ban export of products that are banned or restricted for toxicity concerns in the United States.
6. Safety: continue to evaluate pesticide safety. Enforce community right-to-know procedures when pesticide spraying occurs in public areas. Develop, strengthen, and enforce standards of removal of concerning products for home or child product use. Require development of a human biomarker, such as a urinary or blood measure, that can be used to identify exposure and/or early health implications with new pesticide chemical registration or reregistration of existing products. Developmental toxicity, including endocrine disruption, should be a priority when evaluating new chemicals for licensing or reregistration of existing products.
7. Advance less toxic pesticide alternatives: increase economic incentives for growers who adopt IPM, including less toxic pesticides. Support research to expand and improve IPM in agriculture and nonagricultural pest control.
8. Research: support toxicologic and epidemiologic research to better identify and understand health risks associated with children's exposure to pesticides. Consider supporting another national study of pesticide use in the home and garden setting of US households as a targeted initiative or through cooperation with existing research opportunities (eg, National Children's Study, NHANES).
9. Health provider education and support: support educational efforts to increase the capacity of pediatric health care providers to diagnose and manage acute pesticide

poisoning and reduce pesticide exposure and potential chronic pesticide effects in children. Provide support to systems such as Poison Control Centers to provide timely, expert advice on exposures. Require the development of diagnostic tests to assist providers with diagnosing (and ruling out) pesticide poisoning.

LEAD AUTHORS

James R. Roberts, MD, MPH
Catherine J. Karr, MD, PhD

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ERRATA

Spoooner. We Are Still Waiting for Fully Supportive Electronic Health Records in Pediatrics. *Pediatrics*. 2012;130(6):e1674–e1676.

An error occurred in this article by Spooner, titled “We Are Still Waiting for Fully Supportive Electronic Health Records in Pediatrics” published in the December 2012 issue of *Pediatrics* (2012;130[6]:e1674–e1676; originally published online November 19, 2012; doi:10.1542/peds.2012-2724). On page e1674, on line 33, this reads: “The alarming result from the survey was that only 3% of AAP Fellows reported that they had a system that provided all of the items listed by Leu and colleagues.” This should have read: “The alarming result from the survey was that only 9.6% of AAP Fellows reported that they had or planned to adopt within 12 months a system that provided all of the five “pediatric-supportive” items listed by Leu and colleagues.”

doi:10.1542/peds.2013-0134

Auger et al. Medical Home Quality and Readmission Risk for Children Hospitalized With Asthma Exacerbations. *Pediatrics*. 2013;131(1):64–70

An error occurred in this article by Auger et al, titled “Medical Home Quality and Readmission Risk for Children Hospitalized With Asthma Exacerbations” published in the January 2013 issue of *Pediatrics* (2013;131[1]:64–70; doi:10.1542/2012-1055). On page 69, in Table 2 under the heading Adjusted HR, on the line Medicaid, this reads: “0.28 (0.51–1.34).” This should have read: “0.82 (0.51–1.34).”

doi:10.1542/peds.2013-0187

Council on Environmental Health. Policy Statement: Pesticide Exposure in Children. *Pediatrics*. 2012;130(6):e1757–e1763

A couple of errors occurred in this AAP Policy Statement titled “Pesticide Exposure in Children” published in the December 2012 issue of *Pediatrics* (2012;130[6]:e1757–e1763; originally published online November 26, 2012; doi:10.1542/peds.2012-2757). In Table 2, in the second and third columns where glyphosate is discussed, the words “organic solvent” should be replaced with the word “surfactant.” On page e1758, in the first paragraph of the left-hand column, immediately beneath Table 1, the first full sentence should be amended to read: “For many children, diet may be the most influential source, as illustrated by an intervention study that placed children on an organic diet (produced without most conventional pesticides) and observed drastic and immediate decrease in urinary excretion of organophosphate pesticide metabolites.”

doi:10.1542/peds.2013-0576

Robert JR, Karr CJ; Council on Environmental Health. Technical Report: Pesticide Exposure in Children. *Pediatrics*. 2012;130(6):e1765–e1788

Several inaccuracies occurred in this AAP Technical Report titled “Pesticide Exposure in Children” published in the December 2012 issue of *Pediatrics* (2012;130[6]:e1765–e1788; originally published online November 26, 2012; doi:10.1542/peds.2012-2758). On page e1773 and in Tables 1 and 2 where the phosphonate herbicide glyphosate is discussed, changes should be noted. In the first paragraph of the first column on page e1773 about acute glyphosate poisoning, the word “intentional” should be substituted for the word “unintentional.” In this same paragraph as well as in Tables 1 and 2, the word “surfactant” should replace the words “hydrocarbon solvent” and “organic solvent, respectively.” The

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The American College of
Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS



COMMITTEE OPINION

Number 575 • October 2013

The American College of Obstetricians and Gynecologists Committee on Health Care for Underserved Women

American Society for Reproductive Medicine Practice Committee

The University of California, San Francisco Program on Reproductive Health and the Environment

This Committee Opinion was developed by the American College of Obstetricians and Gynecologists Committee on Health Care for Underserved Women and the American Society for Reproductive Medicine Practice Committee with the assistance of the University of California, San Francisco (UCSF) Program on Reproductive Health and the Environment. The Program on Reproductive Health and the Environment endorses this document. This document reflects emerging clinical and scientific advances as of the date issued and is subject to change. This information should not be construed as dictating an exclusive course of treatment or procedure to be followed.

Exposure to Toxic Environmental Agents

ABSTRACT: Reducing exposure to toxic environmental agents is a critical area of intervention for obstetricians, gynecologists, and other reproductive health care professionals. Patient exposure to toxic environmental chemicals and other stressors is ubiquitous, and preconception and prenatal exposure to toxic environmental agents can have a profound and lasting effect on reproductive health across the life course. Prenatal exposure to certain chemicals has been documented to increase the risk of cancer in childhood; adult male exposure to pesticides is linked to altered semen quality, sterility, and prostate cancer; and postnatal exposure to some pesticides can interfere with all developmental stages of reproductive function in adult females, including puberty, menstruation and ovulation, fertility and fecundity, and menopause. Many environmental factors harmful to reproductive health disproportionately affect vulnerable and underserved populations, which leaves some populations, including underserved women, more vulnerable to adverse reproductive health effects than other populations. The evidence that links exposure to toxic environmental agents and adverse reproductive and developmental health outcomes is sufficiently robust, and the American College of Obstetricians and Gynecologists and the American Society for Reproductive Medicine join leading scientists and other clinical practitioners in calling for timely action to identify and reduce exposure to toxic environmental agents while addressing the consequences of such exposure.

Reproductive Environmental Health

Robust scientific evidence has emerged over the past 15 years, demonstrating that preconception and prenatal exposure to toxic environmental agents can have a profound and lasting effect on reproductive health across the life course (1–3). Exposure to toxic environmental agents also is implicated in increases in adverse reproductive health outcomes that emerged since World War II; these changes have occurred at a rapid rate that cannot be explained by changes in genetics alone, which occur at a slower pace. For additional information, a detailed review is available at www.acog.org/goto/underserved.

Exposure to environmental chemicals and metals in air, water, soil, food, and consumer products is ubiquitous. An analysis of National Health and Nutrition

Examination Survey data from 2003–2004 found that virtually every pregnant woman in the United States is exposed to at least 43 different chemicals (4). Chemicals in pregnant women can cross the placenta, and in some cases, such as with methyl mercury, can accumulate in the fetus, resulting in higher fetal exposure than maternal exposure (5–7). Prenatal exposure to environmental chemicals is linked to various adverse health consequences, and patient exposure at any point in time can lead to harmful reproductive health outcomes. For example, prenatal exposure to certain pesticides has been documented to increase the risk of cancer in childhood; adult male exposure to pesticides is linked to altered semen quality, sterility, and prostate cancer; and postnatal exposure to some pesticides can

interfere with all developmental stages of reproductive function in adult females, including puberty, menstruation and ovulation, fertility and fecundity, and menopause (8). A group of chemicals called endocrine disrupting chemicals has been shown to interfere with the role of certain hormones, homeostasis, and developmental processes (9). They represent a heterogeneous group of agents used in pesticides, plastics, industrial chemicals, and fuels. One study shows that the endocrine disrupting chemical bisphenol-A works in a fashion that is comparable to diethylstilbestrol at the cell and developmental level (10). Likewise, research has clearly shown that many industrial chemicals can affect thyroid function (9, 11). Because of deficiencies in the current regulatory structure, unlike pharmaceuticals, most environmental chemicals have entered the marketplace without comprehensive and standardized information regarding their reproductive or other long-term toxic effects (12).

Vulnerable Populations and Environmental Disparities

Although exposure to toxic environmental agents is ubiquitous among all patient populations, many environmental factors harmful to reproductive health also disproportionately affect vulnerable and underserved populations and are subsumed in issues of environmental justice. In the United States, minority populations are more likely to live in the counties with the highest levels of outdoor air pollution (13) and to be exposed to a variety of indoor pollutants, including lead, allergens, and pesticides than white populations (14). In turn, the effects of exposure to environmental chemicals can be exacerbated by injustice, poverty, neighborhood quality, housing quality, psychosocial stress, and nutritional status (14, 15).

Women with occupational exposure to toxic chemicals also are highly vulnerable to adverse reproductive health outcomes (16). For example, levels of organophosphate pesticides and phthalates measured in occupationally exposed populations are far greater than levels measured in the general population (17, 18). Furthermore, low-wage immigrant populations disproportionately work in occupations associated with a hazardous workplace environment (19, 20).

As underscored by a groundbreaking 2009 report by the National Academy of Sciences, the effects of low-dose exposure to an environmental contaminant may be quite different based on vulnerabilities, such as the underlying health status of the population and the presence of additional or “background” environmental exposure (21). Recognition of environmental disparities is essential for developing and implementing successful and efficient strategies for prevention.

Prevention

The evidence that links exposure to toxic environmental agents and adverse reproductive and developmental health outcomes is sufficiently robust, and the American

College of Obstetricians and Gynecologists (the College) and the American Society for Reproductive Medicine (ASRM) join numerous other health professional organizations in calling for timely action to identify and reduce exposure to toxic environmental agents while addressing the consequences of such exposure (1, 22, 23). Reproductive care providers can be effective in preventing prenatal exposure to environmental threats to health because they are uniquely poised to intervene before and during pregnancy, which is a critical window of human development. An important outcome of pregnancy is no longer just a healthy newborn but a human biologically predisposed to be healthy from birth to old age (3, 24).

Providing Anticipatory Guidance

It is important for health care providers to become knowledgeable about toxic environmental agents that are endemic to their specific geographic areas. Intervention as early as possible during the preconception period is advised to alert patients regarding avoidance of toxic exposure and to ensure beneficial environmental exposure, eg, fresh fruit and vegetables, unprocessed food, outdoor activities, and a safe and nurturing physical and social environment. By the first prenatal care visit, exposure to toxic environmental agents and disruptions of organogenesis may have already occurred. Obtaining a patient history during a preconception visit and the first prenatal visit to identify specific types of exposure that may be harmful to a developing fetus is a key step and also should include queries of the maternal and paternal workplaces. A list of key chemical categories, sources of exposure, and clinical implications are provided in the online companion document to this Committee Opinion (www.acog.org/goto/underserved). Examples of an exposure history are available at http://prhe.ucsf.edu/prhe/clinical_resources.html. Once this exposure inventory has been completed, information should be given regarding the avoidance of exposure to toxic agents at home, in the community, and at work with possible referrals to occupational medicine programs or United States Pediatric Environmental Health Specialty Units if a serious exposure is found (25).

Reproductive care professionals do not need to be experts in environmental health science to provide useful information to patients and refer patients to appropriate specialists when a hazardous exposure is identified. Existing clinical experience and expertise in communicating risks of treatment are largely transferable to environmental health. Physician contact time with a patient does not need to be the primary point of intervention; information and resources about environmental hazards can be successfully incorporated into a childbirth class curriculum or provided in written materials to help parents make optimal choices for themselves and their children (26).

Reporting identified hazards is critical to prevention. For example, the reproductive toxicity of a common solvent used in many consumer products was first

described in a case report of a stillbirth (27). Physicians in the United States are required to report illnesses or injuries that may be work related, and reporting requirements vary by state. No authoritative national list of physician-reporting requirements by state exists. Resources for information about how to report occupational and environmental illnesses include local and state health agencies and the Association of Occupational and Environmental Clinics (<http://www.aoec.org/about.htm>). Illnesses include acute and chronic conditions, such as a skin disease (eg, contact dermatitis), respiratory disorder (eg, occupational asthma), or poisoning (eg, lead poisoning or pesticide intoxication) (28).

Patient-centered actions can reduce body burdens of toxic chemicals (ie, the total amount of chemicals present in the human body at any one time) (29–32). For example, research results document that when children’s diets change from conventional to organic, the levels of pesticides in their bodies decrease (29, 30). Likewise, study results document that avoiding canned food and other dietary sources of bisphenol A can reduce measured levels of the chemical in children and adult family members (31), and that short-term changes in dietary behavior may significantly decrease exposure to phthalates (32).

Clinicians should encourage women in the preconception period and women who are pregnant or lactating to eat fruit, vegetables, beans, legumes, and whole grains every day, to avoid fast food and other processed foods whenever possible, and to limit foods high in animal fat, while providing information about how certain types of food affect health and how individuals can make changes. Also, patients should be advised that some large fish, such as shark, swordfish, king mackerel, and tilefish, are known to contain high levels of methylmercury, which is known to be teratogenic. As such, women in the preconception period and women who are pregnant or lactating should avoid these fish. To gain the benefits of consuming fish, while avoiding the risks of methylmercury consumption, pregnant women should be encouraged to enjoy a variety of other types of fish, including up to 12 ounces a week (two average meals) of a variety of fish and shellfish that are low in mercury. Five of the most commonly eaten seafood items that are low in mercury are shrimp, canned light tuna, salmon, pollock, and catfish. White (albacore) tuna has more mercury than canned light tuna and should be limited to no more than 6 ounces per week. Pregnant women and breastfeeding women should also check local advisories regarding the safety of fish caught in local lakes, rivers, and coastal areas. If no advice is available, they should consume no more than 6 ounces per week (one average meal) of fish caught in local waters and no other fish during that week (33).

Primary Prevention: The Role of Reproductive Care Professionals Beyond the Clinical Setting

Ultimately, evidence-based recommendations for preventing harmful environmental exposure must involve

policy change (34). Action at the individual level can reduce exposure to some toxic chemicals (29, 31, 32) and informed consumer-purchasing patterns can send a signal to the marketplace to help drive societal change (35). However, individuals alone can do little about exposure to toxic environmental agents, such as from air and water pollution, and exposure perpetuated by poverty. The incorporation of the authoritative voice of health care professionals in policy arenas is critical to translating emerging scientific findings into prevention-oriented action on a large scale. Accordingly, many medical associations have taken steps in that direction (23).

For example, in 2009, the Endocrine Society called for improved public policy to identify and regulate endocrine disrupting chemicals and recommended that “until such time as conclusive scientific evidence exists to either prove or disprove harmful effects of substances, a precautionary approach should be taken in the formulation of EDC [endocrine disrupting chemical] policy” (36). Consistent with the clinical imperative to “do no harm,” the precautionary principle states, “When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically” (37).

The College and the ASRM join these associations and call on their members to advocate for policies to identify and reduce exposure to environmental toxic agents while addressing the consequences of such exposure. Advancing policies and practices in support of a healthy food system should be pursued as a primary prevention strategy to ensure the health of pregnancies, children, and future generations. The College and ASRM urge the U.S. Environmental Protection Agency and other federal and state agencies to take all necessary actions when reviewing substances to guarantee health and safety. In addition, the College and ASRM fully support rigorous scientific investigation into the causes and prevention of birth defects, including linkages between environmental hazards and adverse reproductive and developmental health outcomes. Timely and effective steps must be taken to ensure the safety of all mothers and infants from toxic environmental agents. Because data are lacking on the safety of most chemicals, careful consideration of the risks posed must be given while the potential immediate and long-term health and genetic risks are evaluated. A chemical should never be released if a concern exists regarding its effect on health.

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Published concurrently in the October 2013 issue of Fertility and Sterility.

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Exposure to toxic environmental agents. Committee Opinion No. 575. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2013;122:931–5.

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To: [HTHTestimony](#)
Cc: elle.cochran@mauicounty.us
Subject: Submitted testimony for SB801 on Feb 12, 2015 15:35PM
Date: Tuesday, February 10, 2015 2:44:01 PM

SB801

Submitted on: 2/10/2015

Testimony for HTH/ENE on Feb 12, 2015 15:35PM in Conference Room 414

Submitted By	Organization	Testifier Position	Present at Hearing
Elle Cochran	Maui County Council Member	Support	No

Comments: I Support SB801

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Cc: shannonkona@gmail.com
Subject: Submitted testimony for SB801 on Feb 12, 2015 15:35PM
Date: Tuesday, February 10, 2015 10:09:26 AM

SB801

Submitted on: 2/10/2015

Testimony for HTH/ENE on Feb 12, 2015 15:35PM in Conference Room 414

Submitted By	Organization	Testifier Position	Present at Hearing
Shannon Rudolph	Individual	Support	No

Comments: Strongly support! Mahalo Nui Loa!

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HAWAII PEST CONTROL ASSOCIATION

Century Square – 1188 Bishop St., Ste. 1003*Honolulu, HI 96813-3304

Telephone (808) 533-6404 • Fax (808) 533-2739

February 12, 2015

Testimony To: Senate Committee on Health
Senator Josh Green, Chair

Senate Committee on Energy and Environment
Senator Mike Gabbard, Chair

Presented By: Tim Lyons, CAE
Executive Director

Subject: S.B. 801 - Relating to the Health Impact of Pesticides.

Chair Green, Chair Gabbard, and Members of the Joint Committees:

I am Tim Lyons, Executive Director of the Hawaii Pest Control Association and we only have a minor request regarding these bills. That is, there appears to be some exclusionary language under 321A definitions, "outdoor application" however the rest of the bill continues to use such language as "any entity" shall be subject to the section, buffer zones and other language that could inadvertently draw us back in. We would respectfully request a separate subsection that would provide for clear exclusionary language from the entire section.

Thank you for this opportunity to testify.

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To: [HTHTestimony](#)
Cc: ipoc.m.chang@hotmail.com
Subject: Submitted testimony for SB801 on Feb 12, 2015 15:35PM
Date: Tuesday, February 10, 2015 3:47:45 PM

SB801

Submitted on: 2/10/2015

Testimony for HTH/ENE on Feb 12, 2015 15:35PM in Conference Room 414

Submitted By	Organization	Testifier Position	Present at Hearing
Corine Chang	Individual	Support	No

Comments: I am in support of SB801 that establishes notice and reporting requirements for any entity or person that uses restricted use pesticides.

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Cc: gordines@kuaiflowers.com
Subject: Submitted testimony for SB801 on Feb 12, 2015 15:35PM
Date: Tuesday, February 10, 2015 6:43:56 PM

SB801

Submitted on: 2/10/2015

Testimony for HTH/ENE on Feb 12, 2015 15:35PM in Conference Room 414

Submitted By	Organization	Testifier Position	Present at Hearing
John R. Gordines	Individual	Oppose	No

Comments: why are you pushing this it is already required by law!

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Cc: psgegen@hotmail.com
Subject: Submitted testimony for SB801 on Feb 12, 2015 15:35PM
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SB801

Submitted on: 2/10/2015

Testimony for HTH/ENE on Feb 12, 2015 15:35PM in Conference Room 414

Submitted By	Organization	Testifier Position	Present at Hearing
pat gegen	Individual	Comments Only	No

Comments: Disclosure and notification are good but they provide minimal protection by themselves. Need to include significant buffer zones and reporting on demand for health care providers.

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February 11, 2015

Testimony from Jeff Case, Senior Director Government Affairs, CropLife America

In opposition to SB 793, SB 797, SB 800, SB 801, SB 1037

Thursday, Feb. 12, 3 p.m. – Senate Committees on Health, Ag, Water/Land and Education

Aloha Chairs and Committee Members:

CropLife America represents the manufactures and registrants of pesticide products that are used for agriculture production. We recognize the need for these valuable crop protection products to be used in a manner that is protective to schools, children and sensitive environmental areas. But we are opposed to the series of bills - SB 793, SB 797, SB 800, SB 801 and SB 1037.

These bills will not provide any additional public or environmental safety than already exists in the use requirements, many precautions and setbacks identified on the product use labels which are enforceable by state and federal law. We dispute the idea that there are wide-spread problems with pesticide applications in the state, and the need for these extensive and unprecedented measures.

These bills have been develop and promoted by national anti-pesticide /agriculture organizations like Center for Food Safety and EarthJustice. The goal of these national well- funded groups is to make growing genetically modified crops in Hawaii as difficult as possible and has less to do with concerns about their use of pesticides.

These groups have misled the public and lawmakers by suggesting that 33 states which have already passed similar laws. Very few states have laws that contain ANY of the provisions that are in these bills. Integrated Pest Management (IPM) requirements in schools and on school property has nothing to do with the application of pesticides on agriculture lands.

Appropriately – schools have the responsibility of keeping students healthy and safe by ensuring pesticides are used appropriately. The recent incidents at schools in Waipahu, Ewa Beach and Hawaii Kai did NOT involve farmers, but were the result of improper use by neighbors.

We support SB 734 because we believe that a strong state pesticide regulatory program is essential to assuring the public that these valuable pesticide products are used properly. SB 734 strengthens the Hawaii Department of Agriculture's capacity to regulate pesticides in the state. If lawmakers are sincere about addressing public safety, support the pesticide branch of the Dept. of Ag.

Thank for your consideration.

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Cc: elif.beall@gmail.com
Subject: *Submitted testimony for SB801 on Feb 12, 2015 15:35PM*
Date: Wednesday, February 11, 2015 11:16:15 AM

SB801

Submitted on: 2/11/2015

Testimony for HTH/ENE on Feb 12, 2015 15:35PM in Conference Room 414

Submitted By	Organization	Testifier Position	Present at Hearing
Elif Beall	Individual	Support	No

Comments:

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Subject: *Submitted testimony for SB801 on Feb 12, 2015 15:35PM*
Date: Wednesday, February 11, 2015 2:04:36 PM

SB801

Submitted on: 2/11/2015

Testimony for HTH/ENE on Feb 12, 2015 15:35PM in Conference Room 414

Submitted By	Organization	Testifier Position	Present at Hearing
Adolph Helm	Dow Agrosciences	Oppose	No

Comments:

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MONSANTO CO.
94-520 KUNIA ROAD
KUNIA, HAWAII 96759

TESTIMONY BEFORE THE
SENATE COMMITTEE ON HEALTH &
SENATE COMMITTEE ON ENERGY & ENVIRONMENT

FEBRUARY 12, 2015

TESTIMONY ON
SB 801
RELATING TO THE HEALTH IMPACT OF PESTICIDES

Co-Chairs Green, Gabbard and committee members:

My name is Alan Takemoto, Community Affairs Manager for Monsanto Hawaii.

Thank you for allowing us to comment on SB 801. Pesticides when used properly are vital and beneficial tools for all aspects of our environment and the economy. Homeowners, farmers, businesses, government agencies and other environmental organizations use pesticides to protect the environment by controlling invasive species, control weeds, insects, plant diseases, and to prevent or control the spread of diseases in our every day lives. Monsanto and its employees and their families are very attentive to the health and well being of the communities where we work and live. Our employees and their families also attend the nearby schools, childcare facilities, hospitals, and community centers from which everyone benefits.

Safety for all is Monsanto's number one priority. All of Monsanto's employees who work with pesticides receive extensive training. We strive daily to ensure a safe working environment for our employees and guests. We are very aware of our surroundings and take every measure to ensure our neighbors are not impacted by our operations. Monsanto is also committed to being a responsible steward of the land. We utilize soil and water conservation practices in all of our farm operations. We diligently comply with federal and state laws that govern responsible pesticide use and in many cases have taken additional stewardship measures. Many farmers, including Monsanto, use an integrated pest management program that use all aspects of pest and disease control that don't necessarily require the use of pesticides, but also incorporates other techniques and natural occurrences.

Good public policy must and should be based on facts. We encourage the committee to examine the basic facts on pesticide use in Hawaii. The Hawaii State Department of Agriculture has the data on who uses pesticides, where they are being used and how they are being applied. To accurately assess the merits of any bill and value to public health and safety, these facts must be considered. This can be an excellent opportunity to not only understand the actual risks posed by the use of pesticides, but to also educate the public on those risks and the value pesticides bring to our communities. We respectfully oppose this measure. Thank you.

**SB 801
RELATING TO THE HEALTH IMPACT OF PESTICIDES**

**PAUL T. OSHIRO
MANAGER – GOVERNMENT RELATIONS
ALEXANDER & BALDWIN, INC.**

FEBRUARY 12, 2015

Chair Green, Chair Gabbard, and Members of the Senate Committees on Health and Energy & Environment:

I am Paul Oshiro, testifying on behalf of Alexander & Baldwin, Inc. (A&B) and its agricultural company Hawaiian Commercial & Sugar Company on SB 801, A BILL FOR AN ACT RELATING TO THE HEALTH IMPACT OF PESTICIDES. We respectfully oppose this bill.

Pesticide use in Hawaii is extensively regulated by both the Federal Environmental Protection Agency and the State Department of Agriculture under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Hawaii Pesticide Law (Chapter 149A, HRS). Depending upon the pesticide and its intended use, the EPA and the State impose mandatory conditions and requirements that are science based and designed to protect the pesticide applicator, the general public, and the environment. These requirements may include, but are not limited to, maximum application rates, using only specified application methods and equipment, application only under specified weather conditions, prohibition of any pesticide drift to neighboring properties that causes health or environmental harm, and, in the case of restricted use

pesticides, allowing use only by or under the direct supervision of certified pesticide applicators.

Pesticide labels contain specific instructions such as what the pesticide may be used on, how much of the pesticide may be used, how often the pesticide can be used, and worker protection requirements. Federal Law states that the pesticide label is the law, and that use of the pesticide that is not in conformance with the label is a violation of Federal Law and may result in fines and/or imprisonment.

This bill includes provisions to impose new regulations on the use of restricted use pesticides by any entity or person that purchases or utilizes more than an unspecified amount of restricted use pesticides. Mandatory disclosure and notification requirements are required for restricted use pesticides used by these entities and persons. A provision is also included to stipulate that nothing in this bill shall be construed to prohibit or preempt the Counties from regulating pesticide disclosure, notification, and use in a manner that is equivalent to or more restrictive than this bill.

The mandatory pesticide disclosure and notification requirements imposed by this bill may create unintended negative consequences. By imposing these mandatory pesticide disclosure and notification requirements without accompanying public education on Federal and State pesticide oversight and regulation, this may result in an increase in the number of inquiries, complaints, and non-science based comments and concerns. In addition, despite every effort to follow proposed pesticide application schedules, these schedules may unexpectedly change due to various operational and weather related factors. Schedule changes implemented after the pesticide application notice is issued may create confusion and prompt additional inquiries and concerns.

We understand that at present, the posting of warning signs for pesticide application is determined by the U.S. Environmental Protection Agency during their detailed pesticide evaluation and registration process based on the toxicity of the pesticide and other factors. The information required to be posted on warning signs as specified in this bill may require that large signs be posted at various locations. Multiple signs may also need to be prepared to include required information on the various ingredients included in pesticides applied to the agricultural crops.

This bill also includes a provision stipulating that nothing shall be construed to prohibit or preempt the Counties from regulating pesticide disclosure, notification, and use in a manner that is equivalent to or more restrictive than this bill. We respectfully oppose this provision as it is likely to result in pesticide oversight and regulations that differ throughout the State of Hawaii. With pesticide use heavily regulated at both the Federal and State levels of government, we believe that the imposition of any additional pesticide regulations should be science based and thoroughly researched and vetted prior to implementation. We believe that the Federal and State entities presently overseeing pesticide regulation in Hawaii have the technical knowledge and expertise to implement additional pesticide regulations, when warranted and necessary, to protect and safeguard employees, the general public, and our environment.

Based on the foregoing, we respectfully request that this bill be held in Committee. Thank you for the opportunity to testify.



February 12, 2015

TO: COMMITTEE ON HEALTH
Senator Josh Green, Chair
Senator Glenn Wakai, Vice Chair

COMMITTEE ON ENERGY AND ENVIRONMENT
Senator Mike Gabbard, Chair
Senator Josh Green, Vice Chair

FR: Renee Pinel, President and CEO
Western Plant Health Association

RE: S.B. 801 Relating to the Health Impact of Pesticides.
Position: Oppose

Dear Chairs Green and Gabbard, Vice Chair Wakai and members,

On behalf of the Western Plant Health Association (WPHA), I am writing to express our **opposition** to SB 801 which would establish mandatory notice, reporting and use requirements for outdoor pesticide application near sensitive areas. WPHA appreciates the chair's interest in assuring the safe use of pesticide products; however, we believe this bill is overly expansive and will result in additional costs to the agricultural community. WPHA represents the interests of fertilizer and pesticide manufacturers, agricultural biotechnology providers, and agricultural retailers in Hawaii, California and Arizona.

Despite allegations of pesticides causing widespread harm, monitoring that has taken place does not support these allegations or the need for additional requirements as outlined in SB 801. Pesticide products are the most thoroughly assessed chemicals under the authority of the U.S. Environmental Protection Agency (USEPA). In order to register a product, registrants must submit more than three hundred scientific studies assessing a product from both an environmental and a human health perspective. This can equate to more than 75,000 pages of submitted data. The information submitted is then independently analyzed by USEPA scientists. This evaluation takes between two and five years to complete.

Earlier this year, the National Academy of Sciences, an independent organization of highly esteemed scientists, released a review of the USEPA risk assessment process for the registration of pesticides. The report acknowledged the thoroughness of the USEPA process. Through this scientific process, the USEPA establishes appropriate posting requirements, buffers, and application requirements for pesticides which are listed on all pesticide labels. The USEPA's risk assessment process is thorough and takes into account concerns raised by the author of this bill.

The USEPA examines whether buffer areas are needed around pesticide use. If needed, a buffer is mandated. Furthermore, pesticide registrants who provide products used around

sensitive population centers must provide USEPA proof of their safety through multiple exposure scenario studies specific to these settings. The USEPA then specifically establishes use requirements for these settings. The additional use restrictions and notice requirements in this bill would create a costly regulatory burden on schools and care facilities.

The WPHA is also concerned with the inconsistency of this bill's application to only a selected group of pesticide users. These select users will be required to report and provide pre-use notification for all levels of pesticide use. Again, the USEPA has studied the matter and established notification requirements where warranted. This bill goes far beyond the USEPA requirements by focusing on the property line rather than the area of use.

This bill would allow for private citizens to seek to enjoin activity in violation. While creating a private right of action to enforce laws can relieve the state of the financial burden of enforcement, this bill only provides the awarding of fees and cost to prevailing plaintiffs. A prevailing defendant would not be entitled to recover fees and costs which is inequitable.

Finally, this bill makes a substantive change to existing law by abrogating the state law preemption on pesticide use and explicitly provides the counties the authority to regulate pesticide disclosure, notification, and use. Under current law, the state's comprehensive regulation of pesticide use overrides the authority of the counties to do that.

The WPHA recognizes that the public is concerned about the safe use of pesticides. There are federal requirements on usage and education and training requirements for applicators of restricted use pesticides that are taken seriously by pesticide users who have a vested-interest in ensuring proper application procedures are followed. Rather than create arbitrary notice requirements and buffer zones, it would be more beneficial to invest in education programs for growers and the public and increase enforcement of existing use requirements.

We thank you for the opportunity to provide testimony in opposition to this bill. We ask for you to consider our comments as you deliberate.

Sincerely,



Renee Pinel
President/CEO

From: mailinglist@capitol.hawaii.gov
To: [HTHTestimony](#)
Cc: gottlieb@hawaii.rr.com
Subject: Submitted testimony for SB801 on Feb 12, 2015 15:35PM
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SB801

Submitted on: 2/11/2015

Testimony for HTH/ENE on Feb 12, 2015 15:35PM in Conference Room 414

Submitted By	Organization	Testifier Position	Present at Hearing
Alan Gottlieb	Hawaii Cattlemen's Council	Oppose	No

Comments: Farmers and Ranchers strongly believe in the health and safety of their families, employees and the community. Farmers & Ranchers are the true environmentalists, stewarding over 25% of the State's land mass. We don't talk about helping the environment... we do it every day. Pesticide use is already regulated by the EPA and the Hawaii Dept of Agriculture, based on years of testing. Labeling requirements are based on good science, not on arbitrary buffers and activist sentiment. There seems to be an attack these days on the 1% of our population, the farmers and ranchers, who grow the food for everyone else. No one wants to use or over-use pesticides, but do use them when it is necessary. The little fire ant invading Hawaii is a great example. Do we want to fight it with available resources, or let those lovely critters take over our islands, biting everything in their path, raining down out of trees on our residents and visitor industry? Please oppose this anti-farming bill.

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SB801

Submitted on: 2/11/2015

Testimony for HTH/ENE on Feb 12, 2015 15:35PM in Conference Room 414

Submitted By	Organization	Testifier Position	Present at Hearing
Cindy Goldstein	DuPont Pioneer	Oppose	No

Comments:

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SB801

Submitted on: 2/11/2015

Testimony for HTH/ENE on Feb 12, 2015 15:35PM in Conference Room 414

Submitted By	Organization	Testifier Position	Present at Hearing
Iris Iwami	Individual	Oppose	No

Comments: This bill does not seem to be concerned with RUP disclosure considering the exemptions. This bill is not necessary.

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Cc: mark.phillipson@syngenta.com
Subject: *Submitted testimony for SB801 on Feb 12, 2015 15:35PM*
Date: Wednesday, February 11, 2015 3:26:11 PM

SB801

Submitted on: 2/11/2015

Testimony for HTH/ENE on Feb 12, 2015 15:35PM in Conference Room 414

Submitted By	Organization	Testifier Position	Present at Hearing
Mark Phillipson	Syngenta Hawaii	Oppose	No

Comments:

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