CENTER FOR FOOD SAFETY

July 15, 2013

To:
Kaua'i County Council
counciltestimony@kauai.gov

From:
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RE: Bill No. 2491

FOR AN ORDINANCE TO AMEND THE KAUA'I COUNTY CODE 1987, AS AMENDED, BY ADDING A NEW ARTICLE 22 TO CHAPTER 22, RELATING TO PESTICIDES AND GENETICALLY MODIFIED ORGANISMS

Thank you for the opportunity to provide testimony on Bill 2491. Some of the references cited below are also being submitted separately from this testimony, including several appendices. For all supporting materials being submitted, the filename will begin "CFS ....." followed by the author(s) and year of publication for scientific papers, or similar filename that identifies the material, such as "CFS Freese and Schubert 2004."

Center for Food Safety (CFS) is a non-profit organization based in Washington, DC that supports sustainable agriculture and opposes harmful agricultural and food production technologies. I am the science policy analyst at CFS, and have 14 years of experience working on agricultural biotechnology issues. I am author of many reports in this area, including a peer-reviewed scientific paper critiquing U.S. safety testing and regulation of genetically engineered (GE) crops.[1] I am widely quoted on biotechnology issues in the mainstream and scientific press, and have testified before Congress. I am also familiar with the GE crop situation in Hawai'i based on numerous visits over the past decade.

CFS urges County Council members to support Bill 2491 for the protection it affords Kaua'i's environment and the health of its citizens.

I'd like to briefly address three subjects:

I. Hazards of pesticide use with GE crop field tests on Hawai'i
II. Why Kaua'i cannot rely on EPA for protection from these hazards; and
III. Actions taken by states and municipalities in view of EPA's deficient regulation

[1] Freese W & Schubert D (2004). "Safety testing and regulation of genetically engineered foods," Biotechnology and Genetic Engineering Reviews 21: 299-324.

I. Hazards of Pesticide Use with GE Crop Field Tests on Hawai'i

a) Pesticide use with GE corn

Hawai'i is ground zero for experimentation with genetically modified crops, with more field releases than any other state in the nation since field tests began in 1987 (Appendix A). In 2012 alone, USDA data show 160 releases conducted on 740 field test sites (Appendix B). Because Hawai'i is much smaller than Midwestern states that have experienced nearly as many releases, it has a much higher ***density*** of field tests. For instance, Hawai'i has had 5.4 times more GE crop field releases ***per unit area*** than Illinois.[2] This means that in general, more people in Hawai'i live in close proximity to field test sites than residents of Midwestern states like Illinois.

Most of the field tests have involved GE corn, though in recent years more experimental GE soybeans and a sprinkling of other GE crops have been tested. But unfortunately, we know very little else, except that none of these experimental GE crops meet any of Hawai'i's food needs.

Corn is one of the most chemical intensive of crops. Standard growing practices involve applying large amounts of fertilizer; in fact, nearly half the nitrogen and phosphate fertilizer used in U.S. agriculture is applied to corn.[3] Fertilizer runoff can severely impact aquatic life through eutrophication, and is a major cause of dead zones in water bodies such as the Gulf of Mexico.[4] Corn is also heavily treated with pesticides,[5] accounting for 40% of all herbicides used in U.S. agriculture, and 80% or more of the toxic weed-killer atrazine (see below). Virtually all corn seed is treated with neonicotinoids, a class of insecticides implicated in bee die-offs and recently banned in Europe. Other toxic insecticides (e.g. chlorpyrifos, see below) are applied to the soil or sprayed on the plant to kill below- and above-ground pests. Corn seed is also treated with up to four fungicides, while fungicides are increasingly sprayed on corn as well.[6]

Growing GE ***seed*** corn, as on Hawai'i, uses even more agrichemicals, because the inbred varieties often grown for seed are less vigorous and more vulnerable to environmental

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[2] Based on figures in Appendix A (3,012 GE crop releases in Hawai'i vs. 2,934 in Illinois) and the respective areas of the two states.

[3] In 2010, U.S. farmers applied 5,610 nutrient tons of nitrogen (N) and 1,933 nutrient tons of phosphate (P), which represent 46% and 47%, respectively, of total N and P (Fertilizer Use and Price, USDA's Economic Research Service, see Tables 1 and 2, http://www.ers.usda.gov/data-products/fertilizer-use-and-price.aspx#26718).

[4] Diaz, RJ (2008). "Spreading dead zones and consequences for marine ecosystems," Science 321: 926-929.

[5] Pesticides are any chemical that kills a pest, and include herbicides to kill weeds, insecticides, and fungicides to control plant disease.

[6] For an overview of pesticide use on corn, see CFS (2013). "Comments to USDA APHIS on Draft Environmental Assessment and Draft Plant Pest Risk Assessment for DuPont-Pioneer's Petition (11-244-01p) for Determination of Nonregulated Status of Insect-Resistant and Herbicide-Resistant Pioneer 4414 Maize: Event DP-004114-3," Center for Food Safety, April 29, 2013, pp. 3-5. http://www.centerforfoodsafety.org/files/cfs-comments-dupont-pioneer-4114-maize--final_43107.pdf.

stress and pests than the hybrids that farmers grow.[7] Because inbreds have smaller root systems than hybrids, some seed growers "over fertilize to ensure against fertility deficiencies."[8] Because inbreds are less able than hybrids to compete with weeds, "seed growers rely heavily on herbicide applications…."[9] A seed growers' guide lists groups of 10 to 18 insecticides to control various insect pests of corn, including aphids, corn rootworm, cutworm, seedcorn maggot, and wireworms.[10] All told, it is not unusual for corn seed growers to make 12 trips across the field per crop for agrichemical applications and other tasks.[11] I'm told that one can grow two or three corn crops a year in Hawai'i, rather than just one crop as on the mainland, which potentially leads to a doubling or tripling of this already massive pesticidal impact on each acre of land.

In addition, all of the biotechnology companies that operate on Kaua'i – DuPont-Pioneer, Dow, Syngenta and BASF – have made it a top priority to develop herbicide-resistant crops,[12] which are genetically engineered to permit heavy and repeated applications of often toxic herbicides.[13] For instance, Dow has developed corn and soybeans resistant to 2,4-D, part of Agent Orange used in the Vietnam War. Many scientific studies link exposure to chlorophenoxy herbicides like 2,4-D to non-Hodgkin's lymphoma, a terrible cancer of the immune system that kills 30% of those afflicted with it. Other studies have found 2,4-D exposure linked to low sperm counts in workers and other reproductive impacts. 2,4-D is contaminated with highly toxic dioxins, and is banned in Norway and Sweden.[14] Dow has conducted many herbicide-resistant GE corn field trials on Hawai'i that almost certainly include 2,4-D-resistant corn grown on Kaua'i, though we can't be sure because Dow has chosen to hide this information (Appendix C).[15] BASF is experimenting with corn and canola resistant to imidazolinone herbicides, which are strongly linked to bladder and colon cancer.[16]

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[7] Thomison, PR (undated). "Cultural practices for optimizing maize seed yield and quality in production fields," p. 49. http://www.seedconsortium.org/PUC/pdf%20files/16-%20Cultural%20practices%20for%20optimizing%20maize%20seed....pdf

[8] Ibid, p. 54.

[9] Ibid, p. 53.

[10] Rinehold (2011). "Pests of corn grown for seed," Pacific Northwest Insect Management Handbook, Oregon State University, last revised November 2011.

[11] Thomison, op. cit., p. 49.

[12] For a list of genetically engineered crops awaiting deregulation (commercial approval) by USDA, see top two tables at http://www.aphis.usda.gov/biotechnology/petitions_table_pending.shtml. Note that most of these crops are engineered for resistance to one to 3 herbicides each.

[13] For a readable overview of some of these new herbicide-resistant crops, see: Kilman, S. (2010). "Superweed outbreak triggers arms race," Wall Street Journal, June 4, 2010.

[14] For documented discussion of 2,4-D's health harms, see CFS (2012). "Comments to EPA on Notice of Receipt of Applications to Register New Uses of 2,4-D on Enlist AAD-1 Corn and Soybean," Center for Food Safety, June 22, 2012, pp. 53-65.

[15] Bill 2491 would require disclosure of such information.

[16] Koutros, S et al (2009). "Heterocyclic aromatic amine pesticide use and human cancer risk: Results from the U.S. Agricultural Health Study," Int. J. Cancer 124: 1206-1212.

b) Pesticide drift[17]

Any pesticide can drift beyond the field of application to affect neighboring or distant fields, people and wild plants and animals. Some pesticides are more drift-prone than others. Pesticide drift is known to happen even when all rules are followed.

Pesticide drift comes in several forms. First, pesticides drift as they are being applied, especially when winds exceed 10 mph, which is often the case in Hawai'i.[18] While the application of some pesticides is prohibited when it is windy, it is widely known that such rules are often not followed (see below), leading to unintended exposures. Some pesticides can also volatilize and drift many days to months ***after application***, a phenomenon known as vapor drift, which is favored by hot conditions. Finally, pesticides can be carried in the wind as pesticide-laden dust. According to the U.S. Geological Survey, which has conducted extensive investigations into pesticidal pollution for many years:

> "After they are applied, many pesticides volatilize into the lower atmosphere, a process that can continue for days, weeks, or months after the application, depending on the compound. In addition, pesticides can become airborne attached to wind-blown dust."[19]

Herbicides that are frequently cited in episodes of crop injury due to drift include 2,4-D, glyphosate, dicamba, atrazine and paraquat.[20] With high winds and/or hot temperatures, pesticides can drift for miles, even dozens of miles.[21]

According to EPA, states receive about 2,500 pesticide drift complaints from individuals each year, but researchers believe this represents just a small fraction of actual incidents. According to Teresa de Anda of Californians for Pesticide Reform, who has visited many small rural communities in her state, drift has become "so commonplace that people don't report it."[22]

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[17] Unless otherwise noted, for this section see: Owens, K and Feldman J (2004). "Getting the drift on chemical trespass: Pesticide drift hits homes, schools, and other sensitive sites throughout communities," Pesticides and You, Vol. 24, No. 2: 16-21.

[18] Kaua'i apparently has higher average wind speeds than other islands, and considerably higher wind speeds for three months of the year; see graph at bottom of http://www.usa.com/kauai-county-hi-weather.htm.

[19] USGS (2003). "USGS releases study on toxic rainfall in an Joaquin Valley," US Geological Survey, August 18, 2003.

[20] AAPCO (2005). "2005 Pesticide Drift Enforcement Survey," Association of American Pesticide Control Officials, 2005. http://www.aapco.org/documents/surveys/DriftEnforce05Rpt.html.

[21] For documented drifting of 2,4-D from 10 to 100 miles from the application site, see: Cline, H (2012). "SJV phenoxy drift cotton damage widespread," Western Farm Press, June 14, 2013, http://westernfarmpress.com/cotton/sjv-phenoxy-drift-cotton-damage-widespread?page=1; and Hebert, V. (2004). "Regional off-target movement of auxin-type herbicides," Washington State University, 2004.

[22] Khokha, S (2010). "'Pesticide drift' eluding efforts to combat it," National Public Radio, KQED, 2/28/10, http://www.npr.org/templates/story/story.php?storyId=123817702.

c) Hazards of pesticide drift[23]

Those exposed to pesticide drift often report headaches, respiratory distress, nausea, vomiting, dizziness, eye pain, chest pain, and/or unusual tiredness, among other symptoms, depending on the pesticide.[24] All too often, children are the victims. In a single year, seven pesticide drift cases involving school buses were reported in California's San Joaquin Valley.[25] Exposure of children is especially concerning because kids are much more sensitive to health harms from pesticides than adults, according to a 1993 report of the National Academy of Sciences.[26]

Pesticide drift, combined with other exposures, can under some circumstances cause longer-term harm. A growing number of epidemiological studies link pesticide drift to specific diseases, including autism,[27] Parkinson's disease,[28] and childhood leukemia.[29] Monitoring in California and Washington, which has found that airborne pesticide levels sometimes exceed acceptable health standards, also suggests that pesticide drift poses significant health risks to children.[30] One example is the nerve toxin chlorpyrifos, a restricted use insecticide that has been strongly linked to attention deficit hyperactivity disorder in children,[31] reduced birth weight (when pregnant mothers are exposed), and hormonal disruption.[32] Chlorpyrifos is one of the 22 restricted use pesticides used on Kaua'i, but we have no idea precisely where it is applied, how frequently, or in what quantities.

Paraquat (sold under the brand name of Gramoxone by Syngenta, and also used on Kaua'i) is one of the most toxic herbicides in use, and is banned in 32 countries, including the European Union.[33] It is responsible for thousands of deaths, both accidental poisoning and suicides. While ingestion of as little as a teaspoon of concentrate is fatal, paraquat is 1,000-fold more toxic when inhaled.[34] Paraquat can drift for miles.[35] Paraquat drift sickened

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[23] Unless otherwise noted, for this section see: Goldman P, Brimmer JK and Ruiz V. (2009). "Pesticides in the Air – Kids at Risk: Petition to EPA to protect children from pesticide drift," Earth Justice and Farmworker Justice, October 2009.

[24] Owens and Feldman (2004), op. cit.; CDC (2008). "Acute pesticide poisoning associated with pyraclostrobin fungicide – Iowa, 2007," Center for Disease Control, Morbidity and Mortality Weekly Report 1/4/08, 56(51): 1343-45.

[25] Khokha (2010), op. cit.

[26] As discussed in Goldman et al (2009), op. cit.

[27] Roberts, E. et al (2007). "Maternal residence near agricultural pesticide applications and autism spectrum disorders among children in the California Central Valley," Environmental Health Perspectives 115(10): 1482-1489.

[28] Costello, S. et al (2009). "Parkinson's Disease and residential exposure to maneb and paraquat from agricultural applications in the Central Valley of California," Am. Journal of Epidemiology 169(8): 919-926.

[29] Rull, RP (2009). "Residential proximity to agricultural pesticide applications and childhood acute lymphoblastic leukemia," Environmental Research 109(7): 891-899.

[30] Goldman et al (2009), op. cit., pp. 7-10.

[31] Bouchard MF et al (2010). "Attention-deficit/hyperactivity disorder and urinary metabolites of organophosphate pesticides," Pediatrics 125(6): e1270-e1277.

[32] PANNA (undated). Chlorpyrifos Fact Sheet. http://www.panna.org/resources/chlorpyrifos.

[33] For this section, see generally: Watts, M (2010). "Paraquat," Pesticide Action Network Asia and the Pacific, August 2010.

[34] Ames, GR et al (1993). "Community exposure to a paraquat drift," Arch. Environmental Health 48(1): 47-52.

dozens of people in a small California agricultural community, inducing respiratory distress, nausea and diarrhea, among other symptoms.[36] Long-term exposure to paraquat has been linked to numerous health impacts, in particular Parkinson's disease[37] and several cancers.

Schoolchildren in western Kaua'i have reportedly been sickened due to pesticide drift from nearby GE crop fields on a number of occasions since 2006.[38]

d) Hazards from pesticides in water

Atrazine is another restricted use pesticide used on Kaua'i. Atrazine is a potent weed killer that has been linked to suppression of fetal growth,[39] increased risk of spontaneous abortion[40] and preterm births,[41] reduced male fertility,[42] and immune system cancer.[43] Atrazine is among the most common contaminants in the U.S. water supply.[44] Extremely low levels of atrazine cause feminization of male frogs – a process described as chemical castration – underscoring atrazine's ability to disrupt the hormonal system.[45] Atrazine and similar pesticides are also toxic to coral,[46] and while the causes of the epidemic disease killing Kaua'i's North Shore coral reefs have not been fully ascertained, atrazine in runoff water has been suggested as one possible factor.[47] The European Union banned atrazine in 2003.[48] Atrazine's maker, Switzerland-based Syngenta, has conducted a dirty tricks

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[35] According to Kent County, Kentucky extension agent, Gordon Johnson. http://extension.udel.edu/kentagextension/tag/paraquat/.

[36] Ames et al (1993), op. cit.

[37] Tanner, CM et al (2011). "Rotenone, paraquat and Parkinson's disease," Environmental Health Perspectives 119(6): 866-872. See also: http://www.sciencedaily.com/releases/2011/02/110214115442.htm.

[38] For one of many reports, Leone, D (2008). "Odor that got kids sick debated," Honolulu Advertiser, Feb. 24, 2008.

[39] Chevrier, C et al (2011). "Urinary biomarkers of prenatal atrazine exposure and adverse birth outcomes in the PELAGIE birth cohort," Environmental Health Perspectives 119(7): 1034-1041.

[40] Arbuckle, TE et al (2001). "An exploratory analysis of the effect of pesticide exposure on the risk of spontaneous abortion in an Ontario farm population," Environmental Health Perspectives 109(8): 851-857.

[41] Rinsky, JL et al (2012). "Atrazine exposure in public drinking water and preterm birth," Public Health Reports 127: 72-80.

[42] Swan, SH et al (2003). "Semen quality in relation to biomarkers of pesticide exposure," Environmental Health Perspectives 111(12): 1478-1484.

[43] De Roos, AJ et al (2003). "Integrative assessment of multiple pesticides as risk factors for non-Hodgkin's lymphoma among men," Occupational and Environmental Medicine 60: ell. http://oem.bmj.com/content/60/9/e11.full.

[44] Duhigg, C. (2009). "Debating how much week killer is safe in your water glass," New York Times, 8/23/09.

[45] Hayes, TB et al (2011). "Demasculinization and feminization of male gonads by atrazine: consistent effects across vertebrate classes," J. of Steroid Biochemistry and Molecular Biology 127: 64-73.

[46] Jones, RJ et al (2003). "Effects of herbicides diuron and atrazine on corals of the Great Barrier Reef, Australia," Marine Ecology Progress Series 251: 153-167.

[47] By Hanalei biologist Terry Lilley, in: D'Angelo, C. (2013). "Lilley: Reef has 'coral AIDS'," The Garden Island, March 25, 2013.

[48] Sass, JB and Colangelo, A (2006). "European Union bans atrazine, while the United States negotiates continued use," Int. J. Occup. Environ. Health 12(3): 260-267.

campaign in an attempt to discredit atrazine critics,[49] and heavily lobbied the EPA to keep the herbicide registered in the U.S. [50]

II. Why Kaua'i Cannot Rely on EPA For Protection from the Hazards of Pesticides

We would all like to believe that EPA protects us from pesticide harms. But sadly, this is often not the case. Above, we described several examples of EPA-approved pesticides that medical scientists have found to be hazardous, several of which are banned in other nations. Below, we recount some of the weaknesses in EPA's assessment process that lead to approval of hazardous products.[51]

First, EPA requires testing only on the pesticide product's active ingredient (a.i.), even though it is well-known that so-called "inert ingredients"[52] in pesticide formulations that are actually used can be toxic in their own right, or increase the a.i.'s toxicity. Similarly, EPA assesses risks from exposure to only one a.i. at a time, even though in the real world we are exposed to multiple pesticides that can in some cases have additive or synergistic effects. Importantly, EPA relies almost entirely on animal experiments conducted by the financially interested pesticide company, and virtually ignores more relevant human epidemiological studies carried out by independent medical scientists. In addition, EPA approves hazardous pesticides based on the assumption that farmers and pesticide applicators will comply perfectly with exposure reduction measures (e.g. rubber gloves, boots, goggles, long-sleeve shirt), despite clear evidence that such measures are unrealistic and often not followed. Of course, schoolchildren and others exposed to drift have no way of implementing such protective measures.

As deficient as EPA regulation is generally, it provides still less protection in the case of pesticide drift. Though EPA has long required pesticide labels to include admonitions to applicators to avoid spray drift, as noted above more than 2,500 people complain of drift exposure each year. Despite rules that ostensibly prohibit application in windy conditions, the Association of American Pesticide Control Officials (AAPCO) "has experience that supports that there are numerous pesticide applications made when it is too windy."[53] In an attempt to better protect human health and the environment from drift, EPA proposed improved pesticide labeling in 2001. The proposal has still not been finalized. Neither does EPA take drift exposure into account when it registers or re-registers individual pesticides. Finally, EPA's very definition of drift is deficient, in that it leaves out vapor drift

[49] Howard, C (2013). "Syngenta's campaign to protect atrazine, discredit critics," Environmental Health News, June 17, 2013. http://www.environmentalhealthnews.org/ehs/news/2013/atrazine. Duhigg (2009), op. cit.
[50] Sass and Colangelo (2006), op. cit.
[51] For the following section, see: Jacobs M & Clapp S (2008). "Agriculture and Cancer: A Need For Action," October 2008. http://www.sustainableproduction.org/downloads/AgricultureandCancer_001.pdf; and CFS (2012), op. cit., pp. 60-63.
[52] In this context, "inert" means non-toxic to the target pest, and says nothing about the ingredient's toxicity to people or the environment.
[53] AAPCO (2002). Letter from Donnie Dippel, President of AAPCO, to Jay Ellenberger of EPA, March 25, 2002.

and pesticide-laden dust, considering only the form of drift that occurs during application.[54]

One clear example of EPA's deficient regulation is chlorpyrifos, an organophosphate (OP) insecticide. EPA knows that chlorpyrifos is toxic, which explains why it began a phase-out of residential uses of the insecticide in the year 2000, specifically to protect children.[55] Yet EPA has left rural kids unprotected, even though ambient air levels of chlorpyrifos have been found to exceed health standards in agricultural areas, and chlorpyrifos is the most heavily used insecticide in US agriculture.[56] This sets up an unfortunate double standard. Urban and suburban kids are protected from the health harms of chlorpyrifos, but rural kids are not. In Hawai'i, GE crop field tests often occur so close to populated areas that people in both rural areas and towns are at risk of drift exposure.

III. Actions Taken By States and Municipalities in View of Deficient EPA Regulation

Other states and counties have recognized these deficiencies in EPA regulation, and established their own programs and rules in response, including several measures of the sort proposed in Bill 2491.[57] At least seven states have established no-spray buffer zones around schools, hospitals, nursing homes, hospitals, public parks, playgrounds, public highways and/or residential areas. The specific provisions differ in each state, tailored to the pesticidal threats posed by the prevailing agricultural practices. Eight states have established notification requirements for agricultural pesticide applications.[58]

Washington State tracks pesticide-induced illnesses and publishes annual pesticide incident reports to provide a sound empirical basis for measures to mitigate these harms. Pesticide drift is consistently the leading cause of pesticide-induced illness.[59]

In California, counties play a leading role in pesticide regulation.[60] The County Agricultural Commissioners (CACs) generally have enforcement authority for state pesticide law, especially with respect to more hazardous pesticides, which are designated "restricted

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[54] EPA's definition: "Spray or dust drift is the physical movement of pesticide droplets or particles through the air at the time of pesticide application or soon thereafter from the target site to any non-, or off-target site. Spray drift shall not include movement of pesticides to non- or off-target sites caused by erosion, migration, volatility, or windblown soil particles that occurs after application or application of fumigants unless specifically addressed on the product label with respect to drift control requirements." See http://www.epa.gov/PR_Notices/prdraft-spraydrift801.htm, last visited 7/14/13.

[55] See Goldman et al 2009, op. cit., pp. 12, 15-19.

[56] EPA (2011). "Pesticides Industry Sales and Usage: 2006 and 2007 Market Estimates," EPA, 2011, see Table 3.6, note that chlorpyrifos is ranked 14th among pesticides, but is the top-ranked insecticide.

[57] For a comprehensive review of state drift regulations as of 1999, see: Feitshans (1999). "An analysis of state pesticide drift laws," 20 San Joaquin Agric. L. Rev. 269: 2010-2011.

[58] Owens and Feldman (2004), op. cit., Tables 1 and 2.

[59] WA PIRT (2010). "Pesticide Incident Reporting and Tracking Review Panel: 2009 Annual Report," April 15, 2010.

[60] For the following discussion, see: CA DPR (2011). "A Guide to Pesticide Regulation in California," California Department of Pesticide Regulation, December 2011, pp. 56-63..

materials." Anyone who wishes to use a restricted material must petition the CAC for a permit. The CAC can conduct on-site monitoring to assess risk, and then deny the permit, or issue it with restrictions based on local conditions. Because a permit is the functional equivalent of an environmental impact report, it is up to the county to decide if the proposed use of a restricted material will cause a substantial adverse health or environment impact. In addition, growers must file a "notice of intent" with the CAC at least 24 hours before a scheduled application to give county staff time to evaluate the site before or during the application.

In many states, one finds county- or even township-specific drift regulations that are tailored to the particular types of crops that are grown and pesticides used in the area. Some of these regulations target certain drift-prone pesticides; some restrict usage during part of the year. The intent of most such regulations is to prevent drift-related crop damage.[61] How much more important is it to protect people, and especially vulnerable children, from the hazards of pesticide drift?

Conclusion

Kaua'i has a high density of experimental GE crop field trials, mostly GE corn, with associated heavy use of agrichemicals. Neither federal nor state regulation protects Kaua'i's citizens or environment from the harmful effects of these often hazardous pesticides. Experience in Kaua'i, as in many other places around the country, shows that pesticide drift is a serious problem affecting the health of kids, who are especially vulnerable. Other states have taken action to protect their citizens from pesticides, and counties exercise considerable regulatory authority in California. Bill 2491 would provide sensible and long-overdue regulation of pesticide drift to protect Kaua'i's citizens, especially its children, and environment from the harmful effects of toxic pesticides.

Center for Food Safety would be happy to answer questions, supply materials, or provide whatever assistance it can to the County Council as it considers Bill 2491.

Sincerely,

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[61] For example see: MI DoA (2011). "Restriction on use of 2,4-D or MCPA in grape growing areas," Michigan Department of Agriculture and Rural Development, April 13, 2011. See also Feitshans (1999), op. cit., for similar provisions in Arkansas, Florida, Idaho, New York, North Carolina, Oklahoma, Texas, and Washington, pp. 286-292.