

Pediatrician Carla Nelson remembers catching sight of the unusually pale newborn, then hearing an abnormal heartbeat through the stethoscope and thinking that something was terribly wrong.

The baby was born minutes before with a severe heart malformation that would require complex surgery. What worried her as she waited for the ambulance plane to take the infant from Waimea, on the island of Kauai, to the main children's hospital in Honolulu, on another Hawaiian island, was that it was the fourth one she had seen in three years.

In all of Waimea, there have been at least nine in five years, she says, shaking her head. That's more than 10 times the national rate **THIS EXCEEDS EVEN THE MOST EXTREME PREVIOUS ALLEGED ESTIMATES. IN ADDITION, THERE HAS BEEN AT LEAST ONE VALID STATE STUDY THAT CONCLUDED THERE IS NO SPIKE IN BIRTH DEFECTS. THE WRITER FAILS TO ADDRESS THE EFFECTS OF KAUAI'S SMALL POPULATION ON CONFUSING STATISTICAL ASSOCIATION WITH STATISTICAL CAUSATION,** according to analysis by local [doctors](#). **WHERE WAS THIS ANALYSIS PUBLISHED AND WHAT ARE THE EPIDEMIOLOGIC CREDENTIALS OF THE ALLEGED DOCTORS?**

Nelson **SHE'S A PEDIATRICIAN IN COMMUNITY PRACTICE, RIGHT? IN OTHER WORDS, SHE IS NOT AN EXPERT IN EPIDEMIOLOGY AND IS COMPLETELY OUT OF SPECIALTY TRYING TO SPECULATE FROM VERY LIMITED DATA,** a Californian, and other local doctors find themselves in the eye of a storm swirling for the past three years around the Hawaiian archipelago over whether a major cash crop on four of the six main islands, corn that's been genetically modified to resist pesticides, is a source of prosperity, as the companies claim – or of birth defects and illnesses, as the doctors and many others suspect. **NOT QUITE TRUE. THE SEED COMPANIES GROW CORN FOR PRODUCTION OF SEED, WHICH IS THEN MARKETED THROUGH THEIR CORPORATE PARENTS TO FARMERS AND GROWN AS CORN, OF WHICH ABOUT 93 PERCENT IN THE U.S. IS GMO, WITH NO RECORD OF ADVERSE HEALTH EFFECTS.**

After four separate attempts to rein in the companies over the past two years all failed **IT WOULD HELP TO EXPLAIN WHY THESE FAILED, WHICH WOULD ENTAIL READING THE FEDERAL COURT DECISIONS, ALL OF WHICH ARE READILY UNDERSTANDABLE AND CAREFULLY REASONED. IN EACH CASE, FRAMERS COULD HAVE AVOIDED THE ULTIMATE COURT SANCTIONS BY DOING A MORE CAREFUL JOB DRAFTING LOCAL LEGISLATION. THIS IS NOT EVEN MENTIONED.,** an estimated 10,000 people marched on 9 August through Honolulu's Waikiki tourist district. Some held signs like, "We Deserve the Right to Know: Stop Poisoning Paradise" and "Save [Hawaii](#) – Stop GMOs" (Genetically Modified Organisms), while others protested different issues. **THIS MARCH WAS A MARCH FOR HAWAIIAN SOVEREIGNTY, TO WHICH THE ANTI-GMO PEOPLE APPENDED THEMSELVES, UNINVITED, AT THE LAST MINUTE.**

"The turnout and the number of groups marching showed how many people are very frustrated with the situation," says native Hawaiian activist Walter Ritte of the island of Molokai.

## **Seventeen times more pesticide**

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Waimea and the GMO fields. The two orange-roof buildings at bottom left are the Middle School. The one to its right is the hospital. Photograph: Christopher Pala for the Guardian

Waimea, a small town of low, pastel wood houses built in south-west Kauai for plantation workers in the 19<sup>th</sup> century, now sustains its economy mostly from a trickle of tourists on their way to a spectacular canyon. Perhaps 200 people work full-time for the four giant chemical companies that grow the corn – all of it exported **NOT REALLY. IT'S SENT TO THE MAINLAND AS SEED** – on some 12,000 acres leased mostly from the state.

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In Kauai, chemical companies Dow, BASF, Syngenta and DuPont spray 17 times more pesticide per acre (mostly herbicides, along with insecticides and fungicides) than on ordinary cornfields in the US mainland, according to the most detailed study of the sector, by the [Center for Food Safety](#). **NO SOURCE CITED FOR THIS FIGURE OTHER THAN A PR PIECE BY THIS ADVOCACY GROUP, WHICH IS A POLITICAL ORGANIZATION. ON THE OTHER HAND, ACTUAL STATE STUDIES HAVE DISCREDITED THIS 17 TIMES FIGURE AGAIN AND AGAIN.**

That's because they are precisely testing the strain's resistance to herbicides that kill other plants. About a fourth of the total are called Restricted Use [Pesticides](#) because of their harmfulness. Just in Kauai, 18 tons **REPEATEDLY CORRECTED BY STATE OFFICIALS, OVER MONTHS AND MONTHS. THE ACTUAL TOTAL IS ABOUT NINE TONS** – mostly atrazine, paraquat (both banned in Europe) and chlorpyrifos – were applied in 2012. The World Health Organization this year announced that glyphosate, sold as Roundup, the most common of the non-restricted herbicides, is “probably carcinogenic in humans” **NO CONTEXT, PARTICULARLY RELATING TO ACTUAL APPLICATION STANDARDS AND PRACTICES FOR GLYPHOSATE. ALSO, THE WHO DID NOT ADDRESS DOSAGE AND EXPOSURE ISSUES, AS OPPOSED TO THEORETICAL TOXCITY.**

The cornfields lie above Waimea as the land, developed in the 1870s for the Kekaha Sugar Company plantation, slopes gently up toward arid, craggy hilltops. Most fields are reddish-brown and perfectly furrowed. Some parts are bright green: that's when the corn is actually grown. **ALL OF THESE COMPANIES GROW CROPS IN ADDITION TO CORN, MOST NOTABLY SOY, BUT ALSO COVER CROPS OF ALL VARIETIES. SOME OF THE COMPANIES LEASE LAND TO LOCAL FARMERS WHO GROW NON-GMO CROPS. THE COMPANIES ALSO GROW NON-GMO CROPS.**

Both parts are sprayed frequently, sometimes every couple of days. Most of the fields lie fallow at any given time as they await the next crop, but they are still sprayed with pesticides to keep anything from growing. **ATTRIBUTE?????? I'VE VISITED THESE FIELDS AND I DO NOT BELIEVE IT'S TRUE THAT THE FALLOW LAND IS SPRAYED.** To grow either seed crops or test crops, you need soil that's essentially sterile,” says professor Hector Valenzuela of the University of Hawaii department of tropical plant and soil science.

When the spraying is underway and the wind blows downhill from the fields to the town – a time no spraying should occur – residents complain of stinging eyes, headaches and vomiting. **NO OPPORTUNITY FOR RESPONSE FROM THE COMPANIES, WHICH HAVE TAKEN THE POSITION THAT THEY DO EVERYTHING THEY CAN TO AVOID WIND-RELATED DRIFT. WHY WOULD AN EDITOR LET THIS GO AS A SIMPLE ASSERTION OF FACT WHEN THERE MUST OBVIOUSLY BE AT LEAST TWO SIDES TO THIS?**

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“Your eyes and lungs hurt, you feel dizzy and nauseous. It’s awful,” says middle school special education teacher Howard Hurst, who was present at two evacuations. “Here, 10% of the students get special-ed services, but the state average is 6.3%,” he says. “It’s hard to think the pesticides don’t play a role.” **THESE SERVICES ARE LARGELY ECONOMICS-DRIVEN. THIS INDIVIDUAL HAS NO CREDENTIALS TO SPECULATE ABOUT PESTICIDE RELATIONSHIPS, ESPECIALLY SINCE NONE HAS YET BEEN DISCOVERED. AGAIN, NO BALANCE HERE WITH A VOICE TAKING AN OPPOSITE VIEW.**

At these times, many crowd the waiting rooms of the town’s main hospital, which was run until recently by Dow AgroSciences’ former chief lobbyist in Honolulu. **THIS IS REALLY INSIDIOUS SINCE IT IMPLIES THAT DOW INFLUENCES THE OPERATION OF THE HOSPITAL. IF THAT’S THE PREMISE, THERE IS NO PROOF.** It lies beside the middle school, both 1,700ft from Syngenta fields. The hospital, built by the old sugar plantation, has never studied the effects of the pesticides on its patients. **THIS IS A SMALL COMMUNITY HOSPITAL. IT IS NOT IN THE BUSINESS OF EPIDEMIOLOGIC RESEARCH, WHICH HAS BEEN RESISTED BY THE ANTI-GMO FORCES, WHICH PREFER ASSUMPTIONS AND EMOTION OVER SCIENCE.**

The chemical companies that grow the corn in land previously used for sugar refuse to disclose with any precision which chemicals they use, where and in what amounts, but they insist the pesticides are safe, and most state and local politicians concur. **BUT THEY DISCLOSE EXTENSIVE INFORMATION THROUGH THE GOOD NEIGHBOR PROGRAM.** “The Hawai‘i legislature has never given the slightest indication that it intended to regulate genetically engineered crops,” wrote lawyer Paul Achitoff of Earthjustice in a recent court case. **THIS IS DIAMETRICALLY OPPOSITE OF WHAT A COURT DECISION SAYS. WHY IS THAT COURT DECISION NOT MENTIONED?**

As for the birth defects spike **THERE IS NO PROOF THERE IS A SPIKE**, “We have not seen any credible source of statistical health information to support the claims,” said Bennette Misalucha, executive director of Hawaii Crop Improvement Association, the chemical companies trade association, in a written statement distributed by a publicist. She declined to be interviewed.

Nelson, the pediatrician, points out that American Academy of Pediatrics’ report, [Pesticide Exposure in Children](#), found “an association between pesticides and adverse birth outcomes, including physical birth defects”. Noting that local schools have been evacuated twice and children sent to hospital because of pesticide drift, Nelson says doctors need prior disclosure of

spraying: “It’s hard to treat a child when you don’t know which chemical he’s been exposed to.”**IF THAT’S WHAT SHE MEANS, THEN IS SHE INVESTIGATING HOUSEHOLD PESTICIDE USE IN THE HOMES OF HER PATIENTS, SINCE HOUSEHOLD PESTICIDE USE IS A FAR MORE COMMON CAUSE OF PESTICIDE COMPLICATIONS.**

Her concerns and those of most of her colleagues have grown as the chemical companies doubled to 25,000 acres in a decade the area in Hawaii they devote to growing new varieties of herbicide-resistant corn**AGAIN, THEY GROW CROPS IN ADDITION TO CORN..**

Today, about 90% of industrial GMO corn grown in the US was originally developed in Hawaii, with the island of Kauai hosting the biggest area. The balmy weather yields three crops a year instead of one, allowing the companies to bring a new strain to market in a third of the time.

Once it’s ready, the same fields are used to raise seed corn, which is sent to contract farms on the mainland. It is their output, called by critics**ATTRIBUTION??????** a pesticide delivery system, that is sold to the US farmers, along with the pesticides manufactured by the breeder that each strain has been modified to tolerate. **RESPONSE OPPORTUNITY FOR THE SEED COMPANIES??????**

Corn’s uses are as industrial as its cultivation: less than 1% is eaten. About 40% is turned into ethanol for cars, 36% becomes cattle feed, 10% is used by the food industry and the rest is exported.**ATTRIBUTION?**

## ‘We just want to gather information’

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A march against pesticides in Hawaii. Photograph: Christopher Pala for the Guardian

At a Starbucks just outside Honolulu, Sidney Johnson, a pediatric surgeon at the Kapiolani Medical Center for Women and Children who oversees all children born in Hawaii with major birth defects and operates on many, says he’s been thinking about pesticides a lot lately. The reason: he’s noticed that the number of babies born here with their abdominal organs outside, a rare condition known as gastroschisis, has grown from three a year in the 1980s to about a dozen now.**THIS IS ONE OF THE MOST SPECIOUS CLAIMS OF ALL. THE LITERATURE ON GASTROSCHEISIS HAS NEVER IDENTIFIED PESTICIDE EXPOSURE AS A CAUSE, EXCEPT FOR ONE PASSING REFERENCE IN ONE STUDY. THE LITERATURE UNIVERSALLY ACKNOWLEDGES THAT THE CAUSE IS NOT KNOWN, BUT THAT SMOKING AND DRUG USE MAY INFLUENCE IT, AS WELL AS YOUNG AGES OF THE MOTHERS. AGAIN, SIMULTANEOUS REBUTTAL IS COMPLETELY ABSENT.**

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“We have cleanest water and air in the world,” he says. So he’s working with a medical student on a study of his hospital’s records to determine whether the parents of the gastroschisis infants

were living near fields that were being sprayed around the time of conception and early pregnancy. He plans to extend the study to parents of babies suffering from heart defects.

“You kind of wonder why this wasn’t done before,” he says. “Data from other states show there might be a link, and Hawaii might be the best place to prove it.” **INDEED, YOU DO WONDER. BUT THIS GUY IS SPECULATING BASED ON A STUDY HE HASN’T REALLY YET EVEN STARTED AND FOR WHICH HE AND HIS MEDICAL STUDENT MAY, OR MAY NOT, HAVE THE APPROPRIATE QUALIFICATIONS.**

Unbeknownst to Johnson, another two physicians have been heading in the same direction, but with some constraints. They’re members of a state-county commission appointed this year to “determine if there are human harms coming from these pesticides”, as its chairman, a professional facilitator named Peter Adler, tells a meeting of angry local residents in Waimea earlier this month. Several express skepticism that the panel is anything but another exercise in obfuscation. **THIS IGNORES THE HISTORY OF THIS PANEL, WHICH WAS ORIGINALLY DESIGNED BY THE KAUAI COUNTY COUNCIL BUT IMPLEMENTED BY THE COUNTY, WITH STATE FUNDING, AFTER THE ORIGINAL ORDINANCE WAS STRUCK DOWN.**

The panel of nine part-time volunteers also includes two scientists from the chemical companies and several of their critics. “We just want to gather information and make some recommendations,” Adler tells the crowd of about 60 people. “We won’t be doing any original research.” **RIGHT AS FAR AS IT GOES, BUT I KNOW ADLER AND I’M CERTAIN HE OFFERED A MUCH MORE COMPREHENSIVE EXPLANATION, WHICH IS ABSENT HERE. BUT EVEN IF HE DIDN’T, THERE ARE DOCUMENTS ON THE STUDY’S WEBSITE THAT DETAIL THE PROCESS, THE OBJECTIVES AND THE SPECIFIC QUESTIONS THE GROUP IS ADDRESSING. WHERE IS THAT MATERIAL IN THIS STORY??????**

But one of the two doctors, a retired pediatrician named Lee Evslin, plans to do just that. “I want see if any health trends stand out among people that might have been exposed to pesticides,” he says in an interview. “It won’t be a full epidemiological study, but it will probably be more complete than anything that’s been done before.”

The panel itself, called the Joint Fact-Finding Study Group on Genetically Modified Crops and Pesticides on Kauai, is the only achievement of three years of failed attempts to force the companies to disclose in advance what they spray and to create buffer zones – which they do in 11 other states, where food crops receive much less pesticides per acre.

The pushback from the expansion of the GMO acreage first emerged when Gary Hooser of Kauai, a former state senate majority leader who failed in a bid for lieutenant governor in 2010, ran for his old seat on the Kauai County council in 2012.

“Everywhere I went, people were concerned about GMOs and pesticides. They were saying, ‘Gary, we gotta do something’,” he recounts over coffee at the trendy Ha Coffee Bar in Lihue, the island’s capital. “Some were worried about the GMO process itself and others by the threats

of the pesticides, and it became one of the dominant political issues.”**THE PROBLEM IS THAT HOOSER TOOK OFFICE WITH THE ASSUMPTION THERE IS A PARTICULAR PROBLEM, BUT DID NOTHING TO DELVE INTO THAT PROBLEM BEFORE HE INTRODUCED LEGISLATION, WHICH IN TURN WAS DRAFTED WITHOUT ANTICIPATING ITS EXPOSURE TO INVALIDATION BY A FEDERAL COURT.**

Once elected, Hooser, who has a ruddy complexion, piercing blue eyes and arrived in Hawaii as a teenager from California, approached the companies for information about exactly what they were spraying and in what amounts. He was rebuffed.

In the process of what he called “doing my homework”, he discovered that the companies, unlike regular farmers, were operating under a decades-old Environmental Protection Agency permit to discharge toxic chemicals in water that had been grandfathered from the days of the sugar plantation, when the amounts and toxicities of pesticides were much lower. The state has asked for a federal exemption for the companies so they can avoid modern standards of compliance.

He also found that the companies, unlike regular farmers, don’t pay the 4% state excise tax. Some weren’t even asked to pay property taxes, worth \$125,000 a year. After pressure from Hooser and the county tax office, the companies paid two years’ worth of back taxes.**SINCE ALL OF THE LAND FARMED BY THESE COMPANIES IS LEASED FROM EITHER PRIVATE LAND OWNERS OR THE STATE OF HAWAII, THE COMPANIES ARE NOT LIABLE FOR PROPERTY TAXES. THE LAND OWNERS ARE. THE STATE LANDS ARE NOT TAXABLE.**

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So with the backing of three other members of the seven-member Kauai council, he drafted a law requiring the companies to disclose yearly what they had grown and where, and to announce in advance which pesticides they proposed to spray, where and when. The law initially also imposed a moratorium on the chemical companies expanding their acreage while their environmental impact was assessed.

After a series of hearings packed by company employees and their families wearing blue and opponents wearing red, the bill was watered down by eliminating the moratorium and reducing the scope of the environmental study. The ordinance then passed, but the companies sued in federal court, where a judge ruled that the state’s law on pesticides precluded the counties from regulating them. After the ruling, the state and the county created the joint fact-finding panel officially committed to conducting no new research.**THIS OVERSIMPLIFIES A PROCESS THAT CAN’T REALLY BE UNDERSTOOD UNLESS IT IS EXPLAINED.**

Hooser is confident the ruling will be overturned on appeal: the Hawaii constitution “specifically requires” the state and the counties to protect the communities and their environment.**BUT THIS LAWSUIT IS IN FEDERAL COURT.**

In his appeal, Achitoff of Earthjustice argued that Hawaii’s general pesticide law does not “demonstrate that the legislature intended to force the county to sit and watch while its

schoolchildren are being sent to the hospital so long as state agencies do not remedy the problem.”**WHERE ARE THE SIMULTANEOUS REBUTTAL QUOTES FROM ATTORNEYS FOR THE COMPANIES?**

In the Big Island, which is called Hawaii and hosts no GMO corn, a similar process unfolded later in 2013: the county council passed a law that effectively banned the chemical companies from moving in, and it was struck down in federal court for the same reasons. A ban on genetically modified taro, a food root deemed sacred in Hawaiian mythology, was allowed to stand.

In Maui County, which includes the islands of Maui and Molokai, both with large GMO corn fields, a group of residents calling themselves the Shaka Movement sidestepped the company-friendly council and launched a ballot initiative that called for a moratorium on all GMO farming until a full environmental impact statement is completed there.

The companies, primarily Monsanto, spent \$7.2m on the campaign (\$327.95 per “no” vote, reported to be the most expensive political campaign in Hawaii history) and still lost.

Again, they sued in federal court, and, a judge found that the Maui County initiative was preempted by federal law. Those rulings are also being appealed.**DID THE WRITER ACTUALLY READ THE DECISION IN THIS CASE???????**

In the state legislature in Honolulu, Senator Josh Green, a Democrat who then chaired the health committee, earlier this year attempted a fourth effort at curbing the pesticide spraying.

In the legislature, he said, it’s an open secret that most heads of the agriculture committee have had “a closer relationship with the agro-chemical companies than with the environmental groups”.

Green, an emergency room doctor who was raised in Pennsylvania, drafted legislation to mandate some prior disclosure and some buffer zones. “I thought that was a reasonable compromise,” he says. Still, he also drafted a weaker bill as a failsafe. “If even that one doesn’t pass, it’s going to be obvious that the state doesn’t have the political will to stand up to the chemical companies,” he said in a phone interview at the time. “That would be terrible.”

The chairman of the senate agricultural committee, Cliff Tsuji, didn’t even bring the weaker bill to a vote, even though Hawaii’s governor had pledged to sign any bill that created buffer zones.

Asked by email what he would do now, Green replied with a quip: “Drink scotch.”

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