



THE KAUA'I AGRICULTURAL GOOD NEIGHBOR PROGRAM: A RE-EVALUATION



REPORT PREPARED BY
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EXECUTIVE SUMMARY

The Kaua‘i Agricultural Good Neighbor Program (GNP) arose in response to efforts on Kaua‘i to require stricter regulation of restricted use pesticides (RUPs) by large-scale agricultural operations. Created in 2013, the voluntary GNP included components related to advanced notification of pesticide application, buffers in certain areas where pesticides are applied, and post-application reporting about the types and amounts of pesticides used.

This evaluation reviews the efficacy of the GNP nine years after its inception and seven years after a previous evaluation. The Environmental Mediation Center conducted in-depth interviews with agricultural producers who participated in the voluntary program, community residents, representatives from community organizations and industry trade groups, and staff from the Hawai‘i Department of Agriculture.

The GNP provided information about RUP usage that community residents and organizations found beneficial and created a sense of enhanced protection from the voluntary buffer zones and advance notification. Community residents offered suggestions for ways the GNP could be improved. The GNP might have remained viable as a measure to help address conflicts related to agricultural use of RUPs and community residents, but two major developments since the last evaluation profoundly affected its future efficacy. First, business consolidations, operational changes, and, in one case, a shift away from using RUPs appears to have reduced potential exposure of West Kaua‘i residents to restricted use pesticides from large-scale farming. Second, the codification of some elements of the GNP into state law, including mandatory reporting of RUP applications, caused companies to stop submitting reports to the GNP data portal, rendering moot a key reason for its existence.

Elements of the Kaua‘i Good Neighbor Program were innovative at the time, but some were lost in the transformation to a statewide law; other provisions now lag behind regulations in other states. This evaluation includes a list of recommendations for how Hawai‘i might once again become a leader among states in finding a balance that recognizes the “right to farm” and differences between large and small agricultural producers, while addressing the community’s interest in knowing what restricted use pesticides are being used where they live and work.

THE GOOD NEIGHBOR PROGRAM: GOALS AND CONTEXT

The primary goal for this evaluation was to review the efficacy of the GNP, offer suggestions for improvement, and identify ways current best management practices could be incorporated.

The Kaua‘i Agricultural Good Neighbor Program had its origins in an emotional and divisive debate about growing genetically-modified organisms and the use of pesticides by large-scale agricultural businesses on Kaua‘i. In 2013, the Kaua‘i County Council passed Ordinance 960 (Bill 2491), which sought to establish notification requirements before the application of restricted use pesticides, require reporting after applications, and delineate buffer zones near certain types of properties.¹ Then-Mayor Bernard Carvalho vetoed the ordinance stating concerns about its legality. The Council overrode his veto, but the ordinance was challenged in court, where it was deemed preempted by the State’s regulatory framework on restricted use pesticides. Concurrent with the

¹ The ordinance also addressed issues related to genetically-modified crops, which were not considered as part of this evaluation.

journey of Bill 2491, then-Governor Abercrombie had been working with Kaua‘i legislators to develop voluntary guidelines related to the use of RUPs on Kaua‘i. After the bill’s demise, the voluntary program remained the only option for addressing community concerns.

Governor Abercrombie directed the Hawai‘i Department of Agriculture (HDOA or Department) to develop the Kaua‘i Agricultural Good Neighbor Program. The GNP included some of the same elements contained in the ordinance, including pre-application notifications, post-application reporting, and increased buffers around areas where pesticides were to be applied, although the specifics differed. Five companies agreed to participate in the GNP.

In 2015, the Environmental Mediation Center (EMC) conducted an independent assessment of the GNP’s efficacy for HDOA.² The evaluation concluded that developing a more comprehensive and transparent GNP would help improve relations among the participating companies and the surrounding communities. Key recommendations included:

- Open up and simplify registration for pre-application notification.
- Provide more detailed and timely pre-application notification.
- Incorporate a technical analysis of drift patterns into the buffers for pesticide use.
- Make the reporting database more user-friendly by including background information on RUPs, monthly reporting by plots, and utilizing compliance checks to ensure accuracy.

In 2018, the Hawai‘i Legislature passed Act 45, which requires all RUP applicators in Hawai‘i to report RUP usage to HDOA at the end of each calendar year. Act 45 also requires the Department to produce a summary, by county, of such RUP usage, and requires that information be made available for public disclosure.³ In 2019, as part of an Informal Resolution Agreement with the U.S. Environmental Protection Agency on a Title VI claim, HDOA agreed to conduct a further analysis and review of the GNP and awarded a contract to EMC to conduct the evaluation.

The history of the three different frameworks (Bill 2491, GNP, and Act 45), along with the 2015 review, provide important context for this evaluation. Table 1 compares the different frameworks. In addition to the voluntary/mandatory dichotomy, key differences include:

- The scope of those who could register for pre-application notification is narrower under the GNP than that contemplated under Bill 2491.
- Act 45 does not require any pre-application notification.
- Buffer zones were larger under Bill 2491 (500 feet and included most dwellings), narrower under the GNP (100-foot zones), and limited to 100-foot zones near schools during school hours under Act 45.
- Reporting frequency was weekly under Bill 2491, monthly for the GNP, and annually under Act 45.
- On reporting where pesticides were applied, Bill 2491 required listing actual field numbers. The GNP only requires information on the area covered. Act 45 requires applicators to provide Tax Map Key information.
- Bill 2491 and the GNP only apply to large-scale agricultural producers on Kaua‘i. Act 45 applies statewide and imposes reporting requirements on all RUP applicators.

² Environmental Mediation Center. (2015). *An Evaluation of the Kauai Good Neighbor Program*. <https://emcenter.org/kauai-agricultural-good-neighbor-program/>.

³ Hawai‘i Revised Statutes (HRS) §149A-26.

Table 1. Comparison of Bill 2491, the GNP and Act 45

	Bill 2491	Good Neighbor Program	Act 45 (H.R.S. § 149A-26)
Required	Mandatory	Voluntary	Mandatory
Scope	Kaua‘i only – annual purchase or use of more than 5 pounds or 15 gallons of RUPs.	Five large-scale agricultural producers on Kaua‘i.	Statewide – all users of RUPs.
Pre-application notification	Weekly notices for scheduled applications to anyone requesting it who is within 1,500 feet; 24-hour notice of unanticipated applications. See requirements below.	Schools, hospitals, and medical clinics within a 1,000-foot notification zone who register for notification registration and 24 hours’ notice for scheduling changes.	None.
Buffer Zones	Variable: 500 feet for schools and most dwellings, 100 feet for roadways, shorelines, and waterways.	Within 100 feet of a school, medical facility, or residential property. Extended in case of stricter pesticide labeling. Mature orchards exempted.	RUP use prohibited on or within 100 feet of a school property during school hours.
Post-application reporting	Weekly, to Kaua‘i County, available online.	Monthly to HDOA, accessible online.	Annually to HDOA.
Required Information	Both pre- and post-application include pesticide used, active ingredient, date, time, and field number where applied. Post-application also includes acreage, amounts, temperature, wind speed, and direction.	Total RUP volume used (product and active ingredient equivalent), acreage covered, and report date.	Commercial product names, active ingredients of all RUPs used, quantities used for each RUP, general description of the geographic location, including Tax Map Key, and date of application.

PROCESS

To determine the efficacy of the GNP and identify ways that best management practices could be incorporated, the evaluation focused on input from stakeholders and a review of other states’ regulations.

Input from stakeholders

Key stakeholder groups included community members from West Kaua‘i,⁴ agricultural producers in West Kaua‘i who participated in the GNP, individuals who were involved in the passage of Bill 2491 or Act 45, groups involved in the Title VI claim, representatives from nonprofit organizations with environmental and/or agricultural missions, and HDOA staff. Suggestions for additional relevant contacts were solicited during meetings with stakeholder groups.

The original intent was to conduct in-person interviews. The Covid-19 pandemic made that infeasible. Most input was received using online video meetings but also included telephone interviews. The format involved a short overview of the purpose of the evaluation and followed by input on a series of open-ended questions. Some interviews were conducted with a group of stakeholders who had shared interests, while others were conducted with single individuals. An online survey posted on the EMC website was made available to provide additional opportunity for participation and anonymity to those who requested it, but it was not widely used.

A total of 48 participants provided input. Broad categories of interest represented included:

- Residents from Kaua‘i (31)
- Individuals associated with at least six different organizations focused on use of pesticides or genetically-modified organisms (some overlap with residents) (3)
- Large-scale agricultural producers (8), representing four companies
- Agriculture-focused nonprofits (2), representing two organizations
- State agency staff (4)

Assessment criteria were comparable to the first evaluation:

- Effectiveness of specific GNP elements (pre-application notification, buffers around application areas, and post-application reporting)
- Effectiveness of the GNP after implementation of Act 45
- Potential improvements to the GNP and/or Act 45 provisions
- Future value of the GNP

Regulatory context

To provide additional context and to consider how best management practices might be incorporated into the GNP, we reviewed pesticide regulations from other states that have established standards on agricultural use of RUPs in excess of those required by the federal Environmental Protection Agency (EPA).⁵ Nineteen (19) states (including Hawai‘i) require pre-application notification under certain circumstances; eleven (11) have regulations that incorporate

⁴ Use of the term “community members” in this context is not intended to imply that employees of agricultural businesses on Kaua‘i are not community members. Most of the company representatives we interviewed live and work in the same Kaua‘i communities as those who raised concerns about RUPs. For this context only, “community members” refers primarily to those individuals who have expressed concern about the use of RUPs on Kaua‘i. Most representatives of nonprofit organizations we interviewed also are Kaua‘i residents.

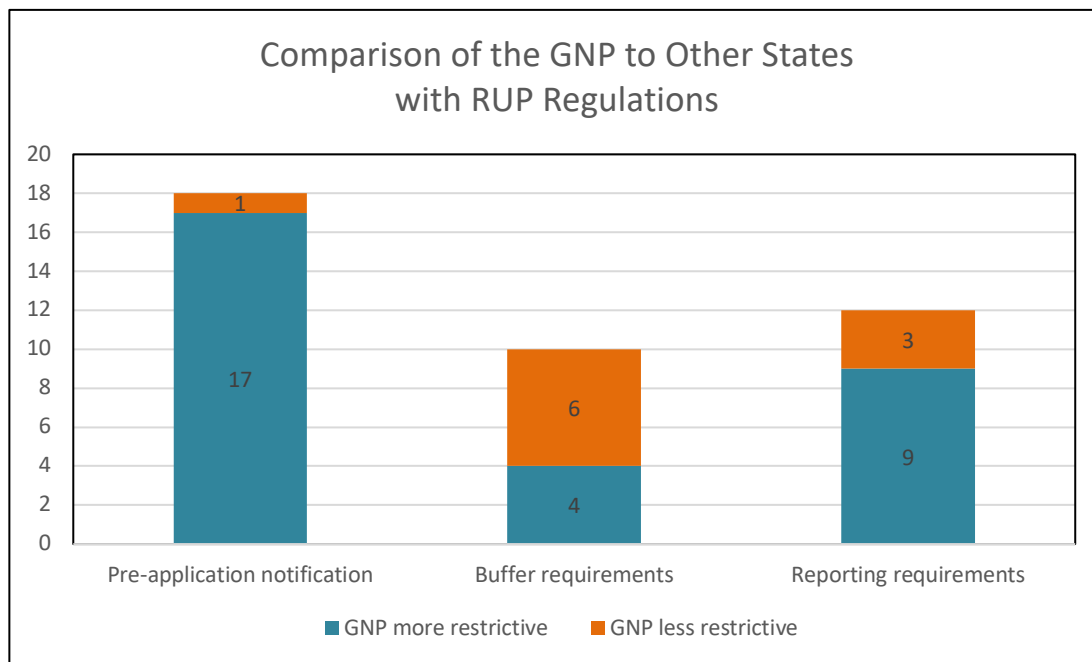
⁵ The Federal Insecticide and Fungicide Rodenticide Act (FIFRA) governs the registration, distribution, sale, and use of pesticides in the United States. States may establish more, but not less, stringent pesticide regulations if they meet standards established by the EPA.

buffer zones; and thirteen (13) have reporting requirements for agricultural RUP users (Table 2).⁶ Some states have regulations related to the use of pesticides near schools which are not directed at agricultural use. Figure 1 shows how the GNP compares to other states.⁷

Table 2. States with RUP Requirements for Agricultural Use, including Hawai‘i

States with RUP requirements			
Requirement	None	Have	% States
Pre-application notification	31	19	38%
Buffer zones	39	11	22%
Post-application Reporting	37	13	26%

Figure 1. Comparison of GNP provisions to other States



Fewer than half the states have pre-application notification requirements for agricultural producers. Approximately one quarter of the states have established buffer zones or reporting requirements for agricultural RUP users. The GNP provisions related to pre-application notification and reporting were more comprehensive or stringent than those for most other states that have any requirements.

EVALUATION

Shifting landscapes

At the time of the 2015 evaluation, seven different large-scale producers were active on Kaua‘i and five were participating in the GNP. The number of producers using restricted use pesticides in

⁶ Information on state regulations was obtained from the Beyond Pesticides website. Beyond Pesticides. (n.d.). *State Regulations*. Retrieved June 16, 2022, from <https://www.beyondpesticides.org/resources/state-pages>. We checked some state regulations for updates but not all.

⁷ We did not compare the requirements of Act 45 to those found in other states.

West Kaua‘i subsequently declined due to acquisitions, mergers, or cessation of operations on the island. One business stopped using RUPs to pursue certification as a sustainable business. By 2021, only three of the original participants were still active and only two still used RUPs. These changes, along with implementation of Act 45 were seismic in terms of the GNP.

By the beginning of 2019, companies had shifted their focus to complying with the legal requirements of Act 45 and stopped submitting voluntary GNP reports. No RUP usage reports were submitted to the HDOA GNP database after January 2019. Company representatives explained their decision by noting that submitting information to two systems would be unnecessarily duplicative and that different data requirements under each system increased the potential for clerical errors and inconsistencies due to different data formats. Concurrently, public retrieval of information from the HDOA database diminished over time as did awareness of the program. However, interviews with community members and industry representatives indicated that the issues that led to Bill 2491 and creation of the GNP remain of considerable interest.

Industry comments:

We comply with the law.

The GNP didn't appear to be enough to move the needle for community concerns.

For the most part, we know our neighbors.

Community comments:

Overall, the GNP was a step in the right direction, but not enough.

Data from the GNP allows us to make informed decisions on where to live and work.

GNP information will be useful for future research on pollution.

PRE-APPLICATION NOTIFICATION

West Kaua‘i residents saw pre-application notification as a valuable tool for limiting pesticide exposure. While the GNP’s notification system was not as broad or inclusive as that intended under Bill 2491, it was still unparalleled by the few pre-notification registry systems in practice in most other states. Community members appreciated that they could close windows or choose not to be home if they knew a spray operation was planned.

Some companies notified neighbors within the 1,000-foot zone, even though the GNP pre-application notification requirement does not apply to residences. Community members commented that greater specificity of timing would have been helpful to minimize potential exposure. Some who live outside the 1,000-foot zone felt they were impacted by pesticide applications and still wanted to be notified. While the pre-application notification process could have been improved, community members considered it as one of the most highly-valued features of the GNP. A pre-application notification was included in an early version of Act 45 but was dropped from the final bill, a change perceived by many community residents as a significant loss.

Status: One producer stopped providing pre-application notification after Act 45 took effect. Two producers still provide notifications. One company no longer uses RUPs but continues to inform neighbors about upcoming applications of general use pesticides and this appears to be appreciated. This business uses a zone system to manage notifications and, if requested, gives neighbors more specific information about geographic location or time of day of applications. The

other business that provides notifications has shifted operations to areas that fall outside the proximity requirements for notification but continues to inform registrants that “nothing is scheduled for the next week.” In effect, very little notification of RUP applications by these two businesses have occurred due to changed circumstances. Both companies find the notification process to be relatively easy using automated calling systems or weekly emails. One company noted that they receive calls if they miss a notification, indicating that neighbors still value the system.

Community comments:

There wasn't any other place in the country that did pre-application notification. They gave you no idea of when they were spraying, so it really wasn't useful. It's still valuable. I'd still like to be able to register for notifications.

Industry comments:

Pre-application notification helps build transparency with the community. The notification is simple. It's not that big of a burden.

Assessment:

Pre-application notification as a concept was highly valued by community members but was less-than-hoped-for in practice. The 1,000-foot proximity qualification for receiving pre-application notification acted as a limitation on its effectiveness by preventing concerned community members from accessing it. Even though the pre-application notifications provided by the two companies now have limited utility due to changed circumstances, operational changes in the future could make such notifications more relevant; for example, a company might shift operations to fields that fall within the 1,000-foot boundary or might resume use of RUPs if deemed necessary. The companies found value in establishing transparency with the community, especially given the relatively low cost once the notification system was set up.

The pre-application notification requirements under the GNP were stronger than nearly all the other 18 states that have them. Conditions for notification by some of the other states included medical certification of hypersensitivity; limited to adjacent or abutting properties; applicable only to specific pesticides; and limited to schools. One exception is Oregon which allows residents within one mile of an application to register for advance notification. California and Oregon use e-mail notification systems that could provide useful models.

Highlights:

- The GNP established a process for communication between producers and community members about agricultural use of RUPs.
- Pre-application notification is still valued.
- Lack of specificity about the time and place of application reduces its value.
- Some want the notification to include people who work in the established zone; others want to expand the zone to include people who feel they are impacted by RUPs.
- Rote notifications that no applications are scheduled may not be particularly valuable.

Recommendations:

- Expand the area included in the notification to 1,500 feet.
- Open registration to include anyone who lives or works within the notification boundary.
- Use email to increase automation and provide feedback on reach.

BUFFERS

Even though the use of RUPs for West Kaua‘i agricultural operation appears to have decreased, concerns remain about health impacts related to unintended drift or runoff of both restricted and non-restricted use pesticides. The GNP 100-foot buffer around schools, medical facilities, and residential properties was considered inadequate by all community members who were interviewed. One person noted that the 100-foot standard was intended for protection of fish and water quality, not humans, a distinction present in Bill 2491. Residents shared stories of pesticide drift occurring beyond established buffers or pesticide labels. They described efforts to examine potential clusters of cancer, other diseases, and death rates in West Kaua‘i near areas where RUPs have been applied. Many community members requested that more research be conducted to assess the occurrence and risks associated with pesticide drift.

Community members and producers shared the belief that buffers should be based on science. A recurring request was that the GNP use “smart buffers” to establish larger buffer zones where the risk is higher and smaller ones where the risk is lower. “Smart buffers” incorporate factors such as toxicity of the pesticide, pesticide formulation (dry or liquid), wind conditions, and applicator type and method. Similar variables were included in the Bill 2491 provisions. Act 45 codified the one-size-fits-all 100-foot buffer requirement for schools, but limited it to school hours, and did not include medical facilities or residential properties.

Status: The delineation of buffer areas varies by producer, a result related to current production decisions and company practices. The land used by one producer for crop production is more than 1,000 feet from any residences or schools, well beyond the buffer requirement. The producer commented that even if production moved closer to schools or homes, they currently leave at least 200 feet between field crews and cease operations if it’s too windy. The non-RUP user supported using “smart buffers,” noting that a 300-foot buffer might be needed if the area of concern was downwind and a smaller buffer or no buffer at all would be appropriate when operations are upwind. Concern was expressed that some smaller farms don’t have enough land to meet buffer requirements and still be viable.

Industry comments:

*(For some people) there will never be a length of buffer that will be good enough.
We understand drift happens. We use specific nozzles to produce larger droplets.
Reducing drift depends on the type of crop and how the pesticide is applied.*

Community comments:

*The GNP buffers are almost meaningless, a “toothless tiger.”
Act 45 protects kids at school but there is no protection if they live right next door.
We can’t use studies on drift from California because the conditions are different.*

Assessment:

Expanding buffer zones in size and scope and adding coverage of residential properties remains a high priority for community members. Those who shared perspectives on buffer zones, including some company representatives, agreed that the 100-foot buffer standard was not realistic and that a “smart buffer” approach, grounded in science, would be preferable. Reaching an agreement between community members and producers on the size of safe and protective buffers was outside the scope of this evaluation, however, there is an apparent willingness to discuss developing an evidence-based protective buffer.

GNP buffer requirements stood out compared to buffer requirements in most other states. Only 11 states including Hawai‘i appear to have laws that are more stringent than federal requirements.⁸ Many of the state programs were enacted in the past five years and were non-existent at the time of the GNP’s conception. Only a few of the other buffer requirements apply to residences. On the other hand, the GNP and Act 45 buffer sizes are much smaller than most other states, which are typically closer to a 1,000-foot or quarter-mile distance. While the GNP covers schools, medical facilities, and residential properties, Act 45 covers only school property during school hours. California regulations provide an example of “smart buffers”; buffer zones vary according to toxicity and risk potential for drift, which considers information about drift class, type, location, wind conditions, and time of day. During the 2022 Hawai‘i legislative session, Senate and House bills were introduced that would have extended buffer zones to one-half mile and covered state and county parks, but neither bill received a hearing.⁹

Highlights:

- Use of buffer zones remains a high priority for community members.
- Neither GNP nor Act 45 use an evidence-based buffer strategy.
- In practice, some producers are using an adaptive approach. Most current operations do not appear to be occurring near residences or schools.
- Buffer zones under Act 45 have a limited application.

Recommendations:

- Expand the type of areas protected to include residences.
- Expand the distance covered by buffer zones.
- Develop “smart buffer” zones that incorporate information about pesticide toxicity, local wind patterns, applicator technology or methods, and local topography.
- Conduct periodic pesticide drift monitoring at appropriate locations.

POST-APPLICATION REPORTING

Community stakeholders want access to information about recent and historical pesticide applications due to concerns about potential acute and chronic impacts of pesticide exposure. The GNP post-application reporting provision generated the most detailed comments during interviews. Producers were not necessarily opposed to strengthening the reporting requirement so long as it was not unduly burdensome and did not require revealing confidential information.

The 2015 evaluation of the GNP documented community members’ criticisms of the post-

⁸ Beyond Pesticides webpage on resources, cited above.

⁹ 2022 Hawai‘i Legislature - companion bills [HB 1530](#) and [SB 3007](#) (2022).

application reporting system and recommendations for improvements. Community members are still not satisfied with the GNP’s post-application reporting requirements, but found the information to be more accessible, understandable, and useable than what is available under Act 45. Table 3 outlines key elements under the different frameworks.

Table 3. Reporting requirements under different Hawai‘i programs

	Bill 2491	Good Neighbor Program	Act 45 (HRS § 149-26)
Who	Entity name	Entity name	Applicator
What	Product name	Product name, EPA #	Product name, EPA #
	Active ingredients	Active ingredients	Active ingredients
How much	Quantity used	Quantity used	Quantity used
	Area treated	Area treated	Area treated
Where	Field number, map of fields		Tax Map Key (crop or site = optional)
Conditions	Temperature, wind speed and direction		
When	Date/time of application	Month reported	Date (time = optional)
Report frequency	Weekly	Monthly	Annually
How reported	Standardized form	Standardized form	Standardized form
Accessible	Online	Online	Via UIPA
Reported to	Kaua‘i County Office of Economic Development	Hawai‘i Department of Agriculture	Hawai‘i Department of Agriculture

Differences among the three frameworks fall into three categories: content of information reported, report frequency, and accessibility of information.

Information reported: Key differences between the GNP and Act 45 include whether the agricultural entity is identified for each submission and the specificity of locations where pesticides were applied. Community stakeholders lamented that GNP data does not provide adequate information about where pesticides were applied or when. They noted that Act 45 requires identifying the location of pesticide use by Tax Map Key (TMK), an improvement for smaller parcels, but that TMKs for the larger entities often encompass several thousand acres, thus providing limited geographic information. Several commenters noted that large producers geo-tag the locations of all their plantings and that it would be quite feasible for them to spatially track the location of RUP pesticide applications. Bill 2491 would have required identifying the field number and making a reference map available. Community stakeholders suggested that requiring spatial data would be feasible and extremely helpful. They noted that the original intent was to require reporting only by the largest users of RUPs, which have the resources to collect and collate the data, and not to unduly burden small-scale RUP users.

Reporting Intervals: While community members raised concerns about the information reported under the GNP, they appreciated the monthly reporting requirement which enabled them to track

usage over time by each company. Act 45's annual reporting requirement makes the information less specific and too late to be useful, according to community members.

Finding the right reporting interval requires balancing the desire for periodic and timely information against the burden on producers to comply with the requirements. One company representative shared that preparing the annual Act 45 reports required up to three weeks of staff time. Arguably, more regular reporting would increase the burden on companies, but might also simply spread it out throughout the year. Some of the companies stated that shorter reporting intervals could be feasible, perhaps on a quarterly basis, but not weekly, as contemplated under Act 2491. Some community members and nonprofit organizations noted that a small number of large producers apply the vast majority of RUPs and suggested that a more frequent reporting interval could be required for those who exceed a certain annual threshold of RUP usage.

Access to information: Individuals and nonprofits reported that the GNP database on HDOA's website was easy to find and search. In contrast, many found it difficult to locate the online information reported under Act 45. Some community members said they searched the HDOA website for the Act 45 database but never found it. The Act 45 database is an aggregated annual summary, by county, of quantities applied and the amount of area treated for each RUP. Those who wanted more detailed information said they had to submit a public information request pursuant to the Hawai'i Uniform Information Practices Act. Some found the process to be so frustrating that they gave up.

Those who sought and obtained the more detailed records provided under Act 45 reported that the data had little practical value without additional investment of time and money. Because usage is reported by the licensed RUP applicator, and not by the agricultural entity, HDOA staff must first redact applicator names, an exercise that the requester must pay for as part of the UIPA process, in one instance costing approximately \$1,600.¹⁰ The information received was provided as scanned copies of reports, some of which were handwritten. Interpreting the data was further complicated because the total amount of RUPs applied on a single TMK over the course of a year might be scattered across different individual applicator reports. Those who sought information from Act 45 reports also noted gaps in information and inconsistent reporting standards (e.g., dry vs. mixed quantities). An additional barrier to accessing information in a timely manner can occur if HDOA has an active investigation in process involving a specific site or applicator, frustrating the public's interest in knowing what chemicals have been applied at a particular location.

Information about sales of RUP products is available, but also requires submitting a public information request and thus is unlikely to be available in a timely fashion. Company representatives noted that HDOA conducts annual reviews of their RUP inventory and compares purchases to inventory on hand and the amount of RUP usage reported. Any discrepancies must be explained. The companies interviewed lauded the professionalism of HDOA inspectors for their timely and thorough investigations, saying the companies are held to a high standard for tracking their sales, inventory, and usage. One company said they were not aware that people weren't able to get the information they wanted out of the online databases and that the industry has an interest in understanding what information people want.

Status: As noted, producers stopped providing data to the GNP portal after Act 45 took effect, so

¹⁰ HDOA staff noted that once that process has been done it would not be necessary for future requests, at least through the time frame of the previous request.

no reports were received after early 2019; data submitted before that remain available online. In 2022, some Hawai‘i legislators sought to address the issue of inconsistent measures used for reporting under Act 45 (e.g., pounds of dry product vs. mixed solutions) but those measures never received a hearing. Data submitted under Act 45 remain the only source of publicly-available information about the application of restricted use pesticides in Hawai‘i.

Community comments

The GNP spreadsheets were organized and easy to sort through.

Why do we have to wait a year to see the (Act 45) reports?

If the goal is transparency, why make the data so inaccessible?

You have to be a scientist to understand those reports.

Companies report Act 45 data differently and it’s hard to make comparisons.

Industry comments

Act 45 requires a lot more detail. They require name, date, time, and Tax Map Key.

Reporting is very time consuming.

All data are verified more than once for accuracy.

A third-party verification process would just mean more work for HDOA.

Assessment:

Having timely, uncomplicated access to information about where and when RUPs were applied continues to be of paramount importance to community members. Companies providing the data don’t want the reporting process to be overly burdensome. A trustworthy reporting system creates the opportunity to improve relations between community members and producers who apply RUPs.

From one perspective, the overall trend for post-application reporting requirements, from the vision of Bill 2491 through the GNP to Act 45, has been that the information provided has become less specific, less frequent, and less accessible. Others note that Act 45 is more sweeping because it applies to all RUP users, not just large-scale applicators; some applauded the geographic specificity required under Act 45 reporting. However, the way the information is organized, along with challenges associated with obtaining and parsing the data, including that some submissions are handwritten, make the process of obtaining useful information sound almost herculean. To the extent a purpose of Act 45 was to provide easily accessible information on RUP usage to community members, it is not serving that purpose well. It is perhaps noteworthy that Act 45 specifies that users of RUPs must submit the annual report to HDOA “for departmental use.”

If the primary purpose of the Act 45 database is to support HDOA’s internal monitoring of RUP usage, minor suggested improvements such as uniform electronic reporting may be adequate. To the extent that the reporting requirements are also intended to provide meaningful information to community members and interested organizations, additional modifications would be necessary. At a minimum, database users want to know what RUP was used, how much, and when and where it was applied. Residents may not know the name of RUP applicators or the TMK of a nearby farm. They would like to be able to input an address or the name of a farm and find out what RUPs were applied near their property.

In practice, the large agricultural producers prepare the forms for their applicators, so information could be organized and submitted by TMK without creating an undue burden on these producers. A simple fix would be to require that information be submitted using an online spreadsheet form, which would allow HDOA to quickly redact applicator names and users and to sort on TMKs. At least two companies appeared open to making the data reported more informative and accessible.

Highlights:

- The GNP database was accessible and relatively user friendly but is no longer being used.
- HDOA staff are responsive and helpful to requests for access to GNP or Act 45 data.
- The process for obtaining data under Act 45 can be time-consuming and costly.
- Act 45 data are not available in a user-friendly format.
- Including TMK information provides value but less so for large TMKs.

Recommendations:

- Require reports of RUP usage data using an electronic reporting format.
- Ensure uniformity of data reported.
- Provide greater geographic specificity about the application of RUPs by including the field name or other geospatial information for applications on large TMKs.
- Develop an online map that would allow users to visually see where RUPs were applied within a specified timeframe. The feature should include user-friendly search features that would allow users to conduct a search based on a residence, school, or workplace.

HEALTH CONCERNS

Concerns about public health were a driving force behind community efforts to require advance notice, establish buffer zones, and post-application reporting. Throughout the interviews, community members called for more data on pesticide drift, including residues that might show up in water, for both acute and chronic health impacts. Because the GNP guidelines were a set of voluntary best management practices for businesses to adopt there were no provisions related to measuring health impacts. However, a number of relevant studies have occurred.¹¹

Cancer rates: Several community members mentioned higher rates of cancer and other diseases in areas near large-scale agricultural operations. In 2013, the Hawai‘i State Department of Health and the University of Hawai‘i Cancer Center, Hawai‘i Tumor Registry conducted a review of diagnosed cancer cases from 2000-2009 and found that cancer rates on Kaua‘i were “similar to or lower than that of the entire state of Hawai‘i.”¹² The review also looked at cancer incidence rates by individual census tract on Kaua‘i¹³ and found no evidence of higher incidence of cancer for specific geographic regions of the island.

¹¹ This summary is not intended to be definitive or exhaustive.

¹² Hawai‘i Tumor Registry, University of Hawai‘i Cancer Center. (2013). *Report prepared by the Hawai‘i Tumor Registry for the Hawai‘i Department of Health: Kaua‘i Cancer Cases*. <https://health.hawaii.gov/wp-content/uploads/2013/09/Kauai-Cancer-Cases-April-2013.pdf>. Kaua‘i did have a higher incidence of melanoma for the period 2000-2004, which the study attributed to a higher rate of Caucasians in a particular census tract. The rate for melanoma on Kaua‘i was no longer elevated during the 2005-2009 period.

¹³ Kaua‘i had 14 individual census tracts at the time of the study, including the islands of Ni‘ihau and Lehua. Southwest Kaua‘i is included in census tract 409.

Ambient air pesticides: HDOA funded a study by Dr. Qing Li, University of Hawai‘i, College of Tropical Agriculture and Human Resources (UH-CTAHR), on pesticide drift near Waimea Canyon Middle School in response to concerns about potential exposure incidents at the school.¹⁴ The study looked for the presence and levels of 24 different pesticides in ambient air samples; targeted pesticides were based on sales records of RUPs from 2010 and 2011 and historical reports. The project included four other schools on Kaua‘i and explored whether a local infestation of the stinkweed plant (*Cleome gynandra*) could be producing volatile chemicals that were affecting students and staff.¹⁵ Five pesticides including chlorpyrifos, metolachlor, bifenthrin, benzene hexachlorides (BHCs), and dichlorodiphenyltrichloroethanes (DDTs), were detected in indoor and outdoor ambient air samples at the school, but only BHCs and DDTs were detected at the other schools. The study also identified 29 different chemicals produced by stinkweed, including methyl isothiocyanate (MITC), a chemical that is used to produce pesticides and is toxic to humans. Fourteen of the stinkweed-associated chemicals, including MITC, were detected at the Waimea school and 10-12 of those were also detected at other schools. Concentrations of the pesticides detected and MITC were described as “well below health concern exposure limits or applicable screening levels” based on California’s subchronic screening levels. The report noted that use of two of the pesticides detected (BHCs and DDTs) had already ceased and their continuing presence in the atmosphere was not unexpected. In 2018, Act 45 banned any use of chlorpyrifos after December 31, 2022; the EPA banned its use on food in 2021.

Pesticides in water: In 2016, the U.S. Geological Survey (USGS), in cooperation with HDOA initiated a pesticide-monitoring program of surface water in Hawai‘i.¹⁶ The study looked for the presence of 225 pesticide compounds in surface water of geographically-distinct agricultural and developed areas and compared pesticide concentrations with selected standards for human health and aquatic life. Thirty-two samples were collected from 31 sites on Kaua‘i and O‘ahu over a six-month period. Of the twelve sites sampled on Kaua‘i, seven were from southwest Kaua‘i and classified as “agriculture” due to their proximity to agricultural use in the area. OIEC, a degradate of atrazine was the most frequently-detected pesticide compound at agricultural sites on both islands; OIEC was detected at six of the seven sites sampled on south and west Kaua‘i.¹⁷ The study compared the pesticide results to existing Federal drinking-water standards, where they exist, and to acute freshwater and chronic freshwater aquatic-life criteria (ALC). Concentrations were all below established standards. The study used human-health benchmarks developed by the EPA and USGS for some compounds without federally-enforceable standards, with benchmarks representing concentrations in water below which adverse health effects due to exposure are not anticipated. The study compared the results to benchmarks for acute noncancer, chronic noncancer, and cancer. The concentrations of pesticides were below all the human-health benchmarks considered, with the highest concentrations at least an order of magnitude less than the most stringent benchmark. Similar results were obtained for comparison with aquatic-life benchmarks for all sites on Kaua‘i.¹⁸

¹⁴ Li, Q.X., Wang, J., and Boesch, R. (2013). *Final Project Report for Kauai Air Sampling Study*. https://health.hawaii.gov/heer/files/2019/11/Final_Report_Kauai_Air_3_15_2013_submitted.pdf.

¹⁵ Stinkweed is used as a natural insecticide elsewhere in the world.

¹⁶ Johnson, A.G., and Kennedy, J.J. (2018). *Summary of dissolved pesticide concentrations in discrete surface-water samples collected on the islands of Kaua‘i and O‘ahu, Hawai‘i, November 2016–April 2017*. U.S. Geological Survey data release, <https://doi.org/10.5066/F7BG2N79>.

¹⁷ Some commonly-detected pesticides found at O‘ahu agricultural sites but not at Kaua‘i sites included the fungicide azoxystrobin and the insecticide imidacloprid.

¹⁸ Samples of imidacloprid exceeded the aquatic-life benchmark at two sites on O‘ahu.

Pesticide drift study: Act 45 required HDOA to develop a pesticide drift monitoring study to evaluate pesticide drift at three schools within the State. An appropriation of \$300,000 specified use of funds from the Pesticide Use Revolving Fund (PURF) to finance the recommended approach. In its December 2019 report to the Legislature,¹⁹ HDOA reported that it had contacted Dr. Li at UH-CTAHR to assess the feasibility of conducting a study. Dr. Li estimated that the pesticide drift study required under Act 45 would take two years and cost approximately \$950,000 due to the need for three study sites for each of the three islands in order to produce replicable results. HDOA reported its intent to instead focus on a planning effort that would consider stakeholder input, including meeting with community representatives in potential study areas, identifying resource needs, and deciding on an experimental design to provide meaningful results.

Assessment

These four studies confirmed that pesticide residues are present in ambient air, streams, and ditches on Kauaʻi. None of the studies found pesticide concentrations that exceeded currently-established health or aquatic life standards. Considerable debate followed the publication of some of these studies. Community members and nonprofit organizations said they appreciated the studies on potential health impacts but also highlighted the need for additional research. Concerns expressed during interviews with individual residents or nonprofit organizations included the absence of reference standards for some pesticides, the use of California drift standards when Hawaiʻi has very different wind patterns, and inadequate attention overall to potential chronic exposure to pesticides. An industry group representative noted that agriculture is not the only user of RUPs but tends to get the blame for perceived impacts and that more funding for the HDOA Pesticides Branch could help with education on proper use of pesticides, especially for the smaller-scale farmers.

While the studies might not alleviate concerns among community residents about pesticide use, they do provide baseline levels for the presence and quantity of pesticides present in the air and waters of Kauaʻi. It is worth noting that since the GNP was first implemented, at least one producer has stopped using restricted use pesticides, and operations at the remaining producers have shifted in ways that may have reduced pesticide exposure for residents, workers, and students and staff at local schools. Repeating any of these studies in the future could help assess whether there has been an overall decline in pesticide residues on the island.

Community residents remain concerned about potential health risks associated with restricted use pesticides. Some cited the lack of progress on the pesticide monitoring study as an example of inadequate action to address their concerns. One West Kauaʻi resident said the outputs and impacts of PURF funds are not clear and requested greater accountability for their use, noting that in some years considerable sums from the PURF have been returned to the General Fund.

Highlights:

- A study on Kauaʻi of cancer data from 2000-2009 found no evidence of higher incidence of cancer on Kauaʻi overall or for specific geographic regions of the island compared to state of Hawaiʻi.

¹⁹ Hawaiʻi Department of Agriculture. (2019). *Report on a Pesticide Drift Monitoring Program to Evaluate Drift at Three Schools within the State*. <https://hdoa.hawaii.gov/wp-content/uploads/2019/01/DOA-Pesticide-Drift-Monitoring-Study-Report-2019.pdf>.

- A 2010-2011 air sampling study documented the presence of pesticide residues at Kaua‘i schools at levels below established risk thresholds. Chlorpyrifos, which was detected at Waimea Canyon Middle School, was subsequently banned under Act 45.
- A water quality study that included sites on south and west Kaua‘i detected pesticides at levels below standards for human health and aquatic life.
- A pesticide drift monitoring study mandated by Act 45 was determined to be more expensive than the funds allocated by the Legislature to conduct the study and HDOA committed to a planning process for the study.

Recommendations

- Make health-related studies more prominent on the HDOA website.
- Update the community on the status of the pesticide drift study.

COMMUNITY ENGAGEMENT

Company staff described various actions they take to support the communities where they live, including outreach activities, hosting fairs and events, and contributing to the community’s charitable organizations. They emphasized that company employees are part of the community—their children attend the same schools, and they live, work, shop, and play in the same communities. They observed that some businesses have staff with multi-generational histories of employment and that the companies create good-paying jobs where few employment opportunities exist.

Community participants acknowledged the contributions of the companies as well as efforts by specific companies to address their concerns, but trust was still cited as an issue for many. Reasons listed included past practices of disposal, no independent verification of reported use, alleged experimental use of chemicals, and presumed health impacts of pesticide use. Suggestions for greater community engagement included returning some of the business profits directly to the community and making unused lands available for local farming. The agricultural companies and community members agreed that more education about RUPs and their risks would benefit the public and could help improve the dialogue.

Assessment

Interviews with participating companies showed they recognized the importance of being a good neighbor and found that complying with the elements of the GNP helped improve transparency. Agricultural producers and community members acknowledged a fundamental divide for some on whether any RUP use was acceptable in the community but agreed that providing information about the use of RUPs helps bridge that divide. A possible step that could open up communication would be the creation of an informal, periodic, facilitated meetings with designated representatives to exchange information about large-scale operations in West Kaua‘i, hear community concerns, and consider efforts to address them.

Highlights:

- The use of RUPs in West Kaua‘i still generates a strong response among some community residents.
- Increased outreach and education about how pesticides function and related risks would be welcome by both RUP users and community members.

Recommendations:

- Make information about RUPs and their use in Hawai‘i more available to the public via the HDOA website.
- Consider establishing a facilitated process to share concerns and information about large-scale agricultural operations in West Kaua‘i.

EFFICACY OF THE KAUA‘I AGRICULTURAL GOOD NEIGHBOR PROGRAM

The provisions of the Kaua‘i Agricultural Good Neighbor Program were innovative, setting Hawai‘i apart from other states in developing best management practices for the application of restricted use pesticides. The GNP encouraged discussions about how large-scale agricultural producers and residents can co-exist in small, close-knit communities, helping set the stage for a statewide strategy for addressing concerns about the use of RUPs.

Passage of Act 45 was the culmination of efforts by environmental organizations and community members to broaden the provisions outlined under the GNP into a mandatory statewide law. Proponents sought to include pre-application notification, increase the buffer zones, and make RUP reporting more spatially explicit by including tax map key locations. While successful in terms of creating statewide mandatory provisions, most of the community stakeholders we interviewed did not see Act 45 as an adequate successor to the GNP. The pre-application notification element was lost, qualifying lands covered by buffer zones became smaller and narrower in scope, and post-application reporting shifted to an annual interval with significant barriers to accessing information. Thus, the effect of Act 45 has been to eclipse some of the key elements of the GNP.

Two large-scale West Kaua‘i producers still voluntarily provide neighbors with pre-application notices, a practice that is not particularly burdensome but that helps demonstrate a good faith effort to be a good neighbor. Both companies already use their own version of “smart buffers” by expanding the protective zone when appropriate. The GNP demonstrated that providing information on RUP usage to a publicly-available database is feasible. One of the two large-scale companies that still uses RUPs in West Kaua‘i expressed openness to reporting RUP usage on more frequent intervals. Ongoing advance notifications, openness to discussions on buffers, and willingness to explore changes to post-application reporting should be viewed as significant positive outcomes of the GNP.

The Kaua‘i Agricultural Good Neighbor Program was designed as a pilot project. During its existence it has provided valuable information not only to residents who are seeking to reduce their exposure to RUPs, but also to agricultural producers about what being a good neighbor means to the community. Even with its shortcomings, the GNP improved relations between some of the large companies who use RUPs and the surrounding community. While there was no shortage of criticism about the GNP and many suggestions for how to improve it, there was a general agreement that it was a net positive. Consolidation of the seed production industry on Kaua‘i and a shift to statewide provisions under Act 45 appear to have rendered the GNP effectively obsolete, but this outcome does not negate the value of its existence.

RECOMMENDATIONS

During the interview sessions we explored the possibility of developing a voluntary certification program with standards for being a good agricultural neighbor. Standards would be developed by a

workgroup of community members, agricultural companies, and nonprofit organizations. However, there was little appetite or traction for such a program from any stakeholder group. Concerns expressed included the considerable resources that would be required for such a program, lack of clarity about the potential value for participating businesses, and issues related to trust and compliance that surfaced during the evaluation.

Given the conclusion that the GNP is no longer viable as a functioning program, our recommendations focus on actions that could help the State of Hawai‘i continue to be a leader in developing best management practices associated with the use of restricted use pesticides. Some recommendations could be implemented directly by the Hawai‘i Department of Agriculture,²⁰ while others would require action by the Hawai‘i Legislature. Some actions could be adopted on a voluntary basis by RUP users to demonstrate their intention of being a good neighbor without the structure of a formal program.

The recommended legislative actions attempt to balance “right to farm” considerations and differences between large and small operators, while addressing the community’s desire to know what restricted use pesticides are being used where they live and work. Any substantive changes or additions to Act 45 would require amendments to HRS §149A-26.

Recommending additional tasks for HDOA comes with the recognition and caveat that the Department has one of the lowest budgets of any agency in the State, and that the pesticide inspection function borne by HDOA is typically the responsibility of a separate health department in other states. Some of the proposed actions would likely require additional funding for HDOA, but they could save considerable time and resources in the future.

Potential Legislative Changes

The following actions could help make Hawai‘i a recognized champion of best management practices for activities related to RUPs:

- Make pre-application notification available to anyone within one-quarter mile.
- Expand the buffer system to include residences and other occupied buildings.
- Develop a “smart buffer” system that incorporates information about pesticide toxicity, wind patterns, applicator technology and methods, and local topography.
- Require use of a standardized electronic form for post-application reporting and require more spatially-specific information about the application location.
- Address inconsistency issues related to different reporting units.

Voluntary Best Management Practices

Agricultural producers could take the following steps on a voluntary basis:

- Provide pre-application notifications to neighboring residents and businesses.
- Continue to support the community through charitable giving, scholarships, etc.
- Consider making fallow land available for community farms or for low-cost leases for local production of food crops.
- Establish a voluntary, informal, facilitated forum to exchange information and concerns.

²⁰ We do not opine on whether any of the proposed actions by the Department would require additional statutory authority, but instead presume the Department would need to consult with its legal counsel.

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Subject to available funding:

- Make data collected under the GNP available online for at least the next three years.
- Develop a standardized electronic form to report RUP usage.
- Make RUP application and sales data publicly accessible online and downloadable in a spreadsheet format, redacted as necessary to maintain confidentiality.
- Create an online map system that allows the public to input a location and view where RUPs have been applied during a specific time frame.
- Conduct pesticide drift studies using data obtained under Act 45 to identify areas on each island with the greatest concentration of RUP usage.
- Provide online information about RUPs, user responsibilities, and HDOA's inspection processes, accomplishments, and regulatory limitations.

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We are deeply grateful for the time and mana'o that was shared by all who participated in this evaluation. Community members, agricultural organizations, and business leaders openly shared their thoughts and experiences about the Kaua'i Agricultural Good Neighbor Program. Despite its limitations and apparent senescence, the reasons for and passion behind its creation remain alive in the minds and hearts of community members and participating companies.

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