JOSH GREEN, M.D.
GOVERNOR

KEITH T. HAYASHI
SUPERINTENDENT

DEPT. COMM. NO. 269

STATE OF HAWAIʻI
DEPARTMENT OF EDUCATION
KA ʻOIHANA HOʻONAʻAUAO
P.O. BOX 2360
HONOLULU, HAWAIʻI 96804

OFFICE OF THE SUPERINTENDENT

December 22, 2022

The Honorable Ronald D. Kouchi, President
and Members of the Senate
State Capitol, Room 409
Honolulu, Hawaii 96813

The Honorable Scott K. Saiki, Speaker
and Members of the House of Representatives
State Capitol, Room 431
Honolulu, Hawaii 96813

Dear President Kouchi, Speaker Saiki, and Members of the Legislature:

For your information and consideration, I am transmitting a copy of the annual report, Composting Pilot Project Working Group, pursuant to Act 207, Session Laws of Hawaii 2018. In accordance with Section 93-16, Hawaii Revised Statutes, I am also informing you that the report may be viewed electronically at: http://www.hawaiipublicschools.org/VisionForSuccess/SchoolDataAndReports/StateReports/Pages/Legislative-reports.aspx.

Sincerely,

Keith T. Hayashi
Superintendent

KTH:jk
c: Legislative Reference Bureau
Hawaii State Public Library System
University of Hawaii
Office of Facilities and Operations

State of Hawaii
Department of Education

Annual Report on Composting Pilot Project Working Group

December 2022

Act 207, Session Laws of Hawaii 2018, requires the composting pilot project working group to annually report on its findings and recommendations.

School Composting Pilot Project Work Group

The School Composting Pilot Project Work Group (working group) was initially convened on November 13, 2019, at a planning charrette. The current makeup of the working group is provided in the table below:

Name	Organization	Office	Title
Alan Gottlieb			Community Volunteer
Allyn Tam	Hawai‘i State Department of Education	Office of Facilities and Operations/Auxiliary Services Branch	Energy Conservation Coordinator
Bob Leinau			Community Volunteer
Brian Miyamoto	Hawai‘i Farm Bureau Federation		Executive Director
Jay Bost	University of Hawai‘i	GoFarms Hawaii, Windward Oahu Program	Farm Coach and Site Manager
Jennifer Milholen	Efficiency First		School Composting Consultant
Jeremy Koki	Hawai‘i State Department of Education	Office of Facilities and Operations/Auxiliary Services Branch	Executive Assistant (TA)
Jessie Hay	Hawai‘i Department of Health	Solid Hazardous Waste	Environmental Engineer
Kalani Matsumura	University of Hawai‘i at Mānoa	College of Tropical Agriculture and Human Resources	Extension Agent
Lauren Kaupp	Hawai‘i State Department of Education	Office of Strategy, Innovation and Performance	Title IV-A State Coordinator
Lene Ichinotsubo	Hawai‘i Department of Health	Solid Hazardous Waste	Environmental Engineer
Miles Yoshioka			Community Volunteer
Natalie McKinney	Kōkua Hawai‘i Foundation		Chief Program Officer
Randall Tanaka	Hawai‘i State Department of Education	Office of Facilities and Operations	Assistant Superintendent
Theodore J. K. Radovich, Ph.D.	University of Hawai‘i at Mānoa	Department of Tropical Plant and Soil Sciences	Extension Specialist, Researcher and Professor
Todd Low	Hawaii Department of Agriculture	Aquaculture Development	Special Projects

Program Applications to Date (15 Schools) (November 2022)

School	Composting and Bioconversion Strategies in Use
Castle High School	Green Waste, Food Waste
Enchanted Lake Elementary School	Green Waste, Food Waste, Vermiculture
Hōnaunau Elementary School	Green Waste, Food Waste, Vermiculture, Bokashi/Microorganisms, Vermicast Tea
Jefferson Elementary School	Green Waste, Food Waste
Kaʻelepulu Elementary School	Green Waste, Food Waste, Vermiculture
Kailua Intermediate School	Green Waste, Food Waste, Vermiculture
Kaimuki Middle School	Green Waste, Food Waste, Vermiculture, Vermicast Tea
Kainalu Elementary School	Green Waste, Food Waste, Vermiculture, Vermicast Tea
Kaiser High School	Green Waste, Food Waste, Vermiculture
Kamaile Academy PCS	Green Waste
Kaʻōhao School	Green Waste, Food Waste, Vermiculture, Bokashi/Microorganisms, Vermicast Tea
Waiʻanae Intermediate School	Green Waste
Waikīkī Elementary School	Green Waste, Food Waste, Vermiculture, Bokashi/Microorganisms, Vermicast Tea
Waikōloa Elem. and Middle School	Green Waste, Food Waste
Waipahu Intermediate School	Green Waste, Food Waste, Vermiculture, Bokashi/Microorganisms, Vermicast Tea

Note: Two (2) additional high schools, and four (4) elementary schools are anticipated to apply to the program, but have not officially been on boarded, so are not included in the report count.

Program Expenses to Date (November 2022)

School	Composting Supplies Delivered	Total
Castle High School	Supplies Delivered	$747.10
Enchanted Lake Elementary School	Share Chipper/Shredder	$1,958.00
Hōnaunau Elementary School	Supplies Delivered	$4,866.00
Jefferson Elementary School	Supplies Delivered	$1,715.47
Kaʻelepulu Elementary School	Share Chipper/Shredder	$1,958.00
Kailua Intermediate School	Share Chipper/Shredder	$1,958.00
Kaimuki Middle School	Supplies Delivered	$3,430.00
Kainalu Elementary School	Share Chipper/Shredder	$1,958.00
Kaiser High School	Supplies Delivered	$1,643.02
Kamaile Academy PCS	Supplies Delivered	$1,494.00
Kaʻōhao School	Share Chipper/Shredder	$1,958.00
Waiʻanae Intermediate School	No Supplies Ordered at this time	$0
Waikīkī Elementary School	Supplies Delivered	$3,011.00
Waikōloa Elem. and Middle School	Supplies Delivered	$2,676.00
Waipahu Intermediate School	Supplies Delivered	$1,181.00
Grand Total		**$30,553.59**

Section I:

Program Status (November 2022)

In 2019, following the passage of Act 207, Session Laws of Hawaii 2018 (Act 207), the Hawaii State Department of Education (Department) Hawai‘i School Composting Grant Program (SCGP) successfully solicited applications for supplies, equipment, and technical guidance support from fifteen Department schools. Program schools received personalized recommendations from composting experts for their campuses based on the school's access to labor, land area, school population, administrative support, teacher engagement, and student interest. The working group developed an organics diversion and campus composting manual for use by the school's program lead and students. These schools were also able to apply to the SCGP for funds to cover supplies and equipment based on the scale and scope of their new or existing composting and organics diversion systems. Salaries were not eligible for funding due to restrictions in Department budgetary rules, thus staff time to manage each campus program had to be funded directly by the school, external funding sources, or donated as volunteer labor. In 2019 and early 2020, these fifteen schools developed or continued to maintain their campus programs until the COVID-19 Pandemic shut down schools, at which time the majority of schools suspended their composting efforts.

COVID-19 closure impacts on teacher and student capacities to manage composting programs have led to a steep decrease in program applications and requests for guidance and funding. Yet, the program has shown much potential for its ability to foster campus composting, engage students in hands-on resource conservation, and demonstrate the financial and operational benefits in minimizing waste streams for disposal. Additionally, the SCGP can serve the essential function of aggregating existing work and resources being done by multiple stakeholders working to encourage school composting and waste reduction. A 2019 Department baseline cafeteria waste audit report reveals around 40% of food by volume is wasted per meal. An estimated 20,000+ pounds a day of uneaten Department school meals is wasted that could be reduced, donated, or rescued from disposal for composting. Tremendous opportunity exists to support the development of on-site and off-site composting that the SCGP can help achieve.

Given these circumstances, the working group will continue to support Department schools in their composting efforts, and recommends that additional funds be allocated to the program in order to serve the highest number of schools, as well as aid the State of Hawai‘i in achieving its codified waste reduction and sustainability goals. The preceding sections outline the schools receiving support and equipment, including updates occurring since the 2022 legislative report. Section II of the report outlines identified actions that the working group can execute in order to best serve Department schools in the shared goal of reducing waste, educating students on resource conservation and soil health, and reducing barriers to access equipment and supplies for composting.

Program School Progress Reports

Several of the following updates have been provided by the school directly. Others have been summarized based on communications with the school leads and in-person visits to the school Campus. Schools in which no new information could be obtained have been omitted.

Enchanted Lake Elementary School

Enchanted Lake's daily diversion and composting efforts are managed by the Windward Zero Waste School Hui (WZWSH) who assist with food and milk collection and maintain static compost piles and vermicomposting stations on-campus throughout the year. Students assist in carbon feedstock prep (newspaper, fiber shredding) and finished pile screening and harvest. WZWSH staff manage the compost piles, creating, and maintaining new piles as they undergo their composting magic. In 2022, as of this report draft, Enchanted Lake has diverted nearly 22,000 pounds of food and milk waste for composting or vermicomposting. They are an established program and supported by the SCGP primarily through supplies funding.

Castle High School

Castle High School has successfully diverted lunch collection food waste from January 2022 to June 2022 into three compost piles that are now "resting" to complete their composting processes. The composting and diversion program will begin again in January 2023 when the piles are ready to be harvested and cured before use on campus as a soil amendment used by the agricultural studies department and program.

Honaunau Elementary School

The Garden Program has re-opened and in-person garden classes are being held every week for Kindergarten through 5th grade students. The school is redesigning the garden, installing new classroom tents, relocating and expanding the plant nursery, and rebuilding the garden beds. Following previous COVID-19 restrictions for snack and lunch food waste collections, and the loss of support staff, Honaunau Elementary campus composting program of three static piles and a compost tumbler has been paused until the working group can assist with redesigning a right-sized program, and a site visit can be completed in January 2023.

The students are excited to be back in the garden and for the compost program to restart. The school is using this time to replace staff that would support the compost program, continuing to develop curriculum around soil building and resource conservation, and building out the garden infrastructure until the program restarts.

Jefferson Elementary School

Jefferson operates a modest, but consistent composting program where a dedicated class of 4th and 5th graders collect lunch food scraps three days a week for composting in a static pile, as well as watering and aerating the pile. In 2022, the program has diverted 300 pounds of food for composting. The teacher advisor is currently working on recruiting other grades and classes to collect food scraps on the remaining two days to increase diversion rates and compost production.

Kaimuki Middle School

Kaimuki Middle is continuing with their vermicomposting and composting progress, as well as entering their projects with the Kaimuki Middle School Science and Engineering Fair.

Kaiser High School

Following the return of in-person learning to campus, three teachers championed the campus composting program encouraging their students to assist with re-establishing six static thermal piles to process the food scraps collected from classroom activities and cafeteria lunch prep scraps.

Students and teachers have utilized agriculture and botany class time to maintain the static piles with aeration, watering, and temperature monitoring to ensure proper composting and pathogen reduction.

Additionally, Kaiser High School, supported by 25 students and three teachers, conducted a lunch waste audit in order to establish the full weight and volume of food scraps, milk, and compostable fiber trays and napkins that could be captured and processed in campus compost piles. With the quantitative and qualitative observations gathered at the audit, students in the Junior-level Botany class have developed strategies around collection stations, signage, announcements, and campus engagement in order to rescue the most compostable material for the static piles to continue processing resources and producing compost for the campus's robust school garden.

Kamaile Academy PCS

Following the COVID-19 closures, the small-scale green waste and food waste composting program has not recovered, and is considered paused. Program coordinators report that limited face time with students and dry Leeward conditions, also contribute to limited success with the startup composting efforts. Most food waste is currently being provided to pig farms, preventing it from disposal and rescued for diversion to a higher and better use for the material.

Waikiki Elementary School

Following the re-allocation of staff time, the campus composting and vermicomposting efforts have been paused. Efforts to restart or redesign the program with support from the working group will be made in January 2023.

Waikoloa Elementary and Intermediate School

The school is using three kinds of composting on a small-scale: food, mulch, and worms. As the students are engaging and enjoying the program, the school is optimistic about their compost production progress even as green waste composting complications continue to occur. It is hoped that production issues can be resolved following a site visit and team check-in in 2023.

The school collects a minimal amount (0.25 to 1 pound) of lunch scraps on Wednesdays for their worms in their 25-gallon size food compost bin. The school food waste goes to a local piggery. In addition, Waikoloa is also offering a Composting 201 session.

Waipahu Intermediate School

The gardening/composting lead is working with cafeteria staff to collect vegetable/fruit preparation waste, collaborating with tree trimmers for mulch, and collecting garden waste. In 2021, academic advisors and Future Farmers of America (FFA) program students applied to a national Samsung Solve for Tomorrow STEM grant to expand their program beyond the school campus. Waipahu Intermediate's program made it into the top 100 schools in the United States, but ultimately did not receive any prize money. School composting and campus organics collection is ongoing and FFA and agricultural students assist with processing collected resources to produce compost. These students are continuing to design new experiments with the campus-produced compost to compare the impact of different variables on a compost batch's vitality, porosity, and levels of biological activity.

For future expansion planning, Waipahu Intermediate performed a lunchtime waste audit and gathered essential information on the volume of meal prep food scraps, student meal waste, and fiber compostable materials like trays and napkins, that they can plan to compost. These results were made into a visualization and presentation that is being presented to classes to further optimize and improve operations. If the audit average continues, Waipahu will have 100 pounds/day of food scraps to compost, 35 pounds of milk, and 30 pounds of fiber compostable products that it can collect and divert to its composting operation.

Waipahu Intermediate's teacher advocates have generated a vision of their campus as a destination composting operation model that other schools' teachers and students can come to learn about possible diversion, composting, technology, and testing strategies. In support of that vision and goal, these teacher advocates have successfully partnered with Green Mountain Technologies to order two Earth Cube in-vessel composting machines (arrival pending). In-vessel composting machines optimize and accelerate the natural composting process and prevent pests, odors, and dust/debris. To further demonstrate the effectiveness of composting technology strategies, Waipahu Intermediate will also be applying to the SCGP for materials to build an in-vessel rotary drum composting machine. The static composting piles, Earth Cubes, and rotary drum machine will provide ample opportunities to develop standards-aligned curriculum, plan and execute experiments, and host other schools interested in choosing a composting strategy right for their campus composting ambitions.

Section II:

2023 Grant Program Goals and Initiatives for Increased School Benefit

Program Goals

To best serve the existing program schools, create legacy composting systems, and increase the number of schools benefiting from Act 207, the working group will pursue the following activities beginning in 2023 to expand programs and increase impact:

1. Further define and catalog the options for support a school can receive from the SCGP, particularly technologies and resources.
2. Design more effective outreach materials and methods to ensure all eligible schools have an opportunity to apply.
3. Develop comprehensive digital resources for students and teachers, references for campus waste audits, composting infrastructure, standard operating procedures, regional feedstock maps, educational modules, system strategies and technologies available.
4. Develop a digital "Yes/No" flowchart or survey system to find the most appropriate scale and scope for each school's composting program, based on student population, space and labor available, dedicated resources, and teacher and student capacities to participate.
5. Investigate the potential to leverage remaining allocated funds as "matching funds" for external grant applications to further fund the SCGP in perpetuity and help more schools.

1. Further Define and Catalog Options for Support

Prior to increasing outreach efforts, the working group will further organize and create new resources outlining the areas of support available to school applicants, particularly:

a. Program scoping (scale, appropriate technologies, labor);
b. Standard operating procedures based on program model;
c. Baseline waste audits;
d. Available composting consults;
e. Existing educational modules and resources; and
f. Eligible equipment purchases.

In this way, the working group can most efficiently and effectively onboard new schools, offer relevant guidance, and further support existing school programs as they restart or continue to operate or expand.

2. Refine and Expand Outreach Efforts to Reach more Interested Schools

Feedback received during the operation of the program indicates that despite a district-wide announcement of the SCGP, many schools were still unaware of the available funding and support created by Act 207. The working group will employ additional strategies and contact methods to connect with Department schools who may benefit from the program and wish to apply for support in Spring 2023 or Fall 2023.

3. Develop Comprehensive Digital Resources for School Composting Programs

One of the primary markers of success for the SCGP will be legacy; the development of campus composting programs that are accessible, convenient, effective, and manageable to maintain, beyond the departure of initial program champions. In this way, the Department can ensure that upfront resources and labor invested in campus composting efforts are more likely to be continued long term. One of the ways in which the working group can ensure this is by developing and providing resources in a format that will be most effective for students and educators to utilize: digital, short-form lessons and training cataloged in one place.

The working group will allocate portions of the program funding to create and organize a collection of short videos and documents relevant to every scale and strategy of composting that may be employed by each program school. Resource categories include:

a. How to conduct a campus or cafeteria waste audit;
b. Choose appropriate composting infrastructure;
c. Create and manage standard operating procedures;
d. Regional feedstock maps;
e. Student and staff educational modules;
f. System best practices; and
g. Technologies/machinery available.

4. Develop Online Onboarding Tools to Right-size and Right-scope Campus Composting Programs

A key lesson learned during the execution of the program and working directly with the existing 15 schools is that applying a single strategy to every school is not the most effective way to create long-lasting programs. Every school is unique in its levels of staff, student, and administrative enthusiasm and capacity; in available support from parents and community volunteers; and in campus space and geographic location. Compost experts on the working group are able to aid each school applicant in designing the best strategy and operational fit school-by-school, but a more efficient digital onboarding process will be designed and employed to gather this information from program schools at the onset to hone in on the best strategy and technology choices for each school. In this way, with a plan and approach identified in the early stages, schools can more quickly begin composting operations on campus that best fits their unique circumstances.

The working group will develop an online survey with relevant questions on teacher and administrative support, facilities support, parent and volunteer commitments, campus size, campus geographic location, space available for compost operation use, student population, green waste currently generated onsite, and allocated funding for the program. Answers to these questions early in the process of onboarding a new school will help the program team make faster recommendations on the best scale and scope of campus composting program, and the associated equipment that they are eligible to apply for through the SCGP.

5. Investigate Additional Program Funding to Increase Funds Available to Support the Department School Composting

In addition to recommending that the Hawai‘i State Legislature authorize additional funds allocated for the Department SCGP, the working group is also inquiring about allocating remaining program funds as a match for private and federal composting and waste reduction grants. The influx of additional funds would greatly expand the number of schools that could receive guidance, supplies, and machinery where appropriate.