

**Organics, Recycling and Household Hazardous Waste
Education and Outreach
2013 Fourth Quarter Report (January 2014)
WSU Snohomish County Extension**

Residential Solid Waste Outreach

Program Planning

The Process:

Chrys Bertolotto, Stephanie Leeper, and Hallie Harness met in early November to discuss foodcycling and HHW evaluation plans, quarterly reporting methods, and the necessity to develop core messaging for foodcycling and HHW campaigns. After conducting research, studying the basics of Community Based Social Marketing, reviewing several research documents and continual brainstorming at work and home, Chrys and Hallie met to discuss new ideas for foodcycling messaging.

A draft plan was shared with Sego Jackson on Dec. 3rd and it confirmed that we were “on the right track” with the basic messages around paper sorting, foodcycling, compost use and household hazardous waste drop off under the main theme of “It’s So Easy”. A request for where to prioritize our efforts was responded to with a request to do it all. The current outreach plan is Attachment A. As of December 31, 2013, this plan had not yet benefitted from discussions with partners, including Master Gardener Advisory Team members. Plan elements may be scaled back or altered based on those discussions. The current plan is to divide the three campaign messages by program, potentially including Beach Watchers, although not currently funded by this agreement.

Messaging and Materials Development:

Messages and evaluation questions are still in the development phase and outreach campaigns may be changed and adapted to reflect what is feasible for volunteer programs to implement and will encourage the most behavior change for program target audiences. All materials will be created in the first and second quarter of 2014.

Preliminary Household Hazardous Waste (HHW) Outreach Material Development:

“Keep Your Kids Safe and Cupboards Uncluttered”

The desired behavior we want people to do is take their HHW to the drop off facility in Everett. Examination of King County hazardous waste campaigns and correspondence with Sego Jackson and Steve Fisher from the City of Edmonds has revealed two main motivations to reduce HHW in the home: reducing clutter in storage areas and keeping the home safe. A small display was created to allow Master Gardeners and Sustainable Community Stewards to begin discussions on this topic in 2013 while a larger campaign and further research was conducted. They shared over 150 household hazardous waste information cards with community members at several events.

Youtube Film Development:

In October, Chrys Bertolotto and Hallie Harness met with grant administrator Sego Jackson to discuss current progress on the waste stream education video and get approval to move forward with the current plan. The “Your Waste Stream: Sorted” film idea encompassed basic information about garbage, recycling, compost, and HHW waste streams. A storyboard had been developed and some on-film interviews had been conducted. Sego Jackson expressed concerns about the length of the film and

pointed out that Waste Management may be producing a film as a result of their recent behavior study. He recommended corresponding with Waste Management and Colehour + Cohen to partner on their filmmaking plans and receive input about how to create an effective video. Sego recommended potentially creating a series of short films on each waste stream and Chrys brainstormed the possibility of creating a film for volunteer training purposes instead of residential outreach. Sego also recommended reviewing the recent Waste Management behavior study to pinpoint potential areas of focus for the film. The film project was put on hold pending more information from WM and C+C and more ideas on targeted foodcycling and HHW messages.

In November, an in-house Residential Solid Waste meeting with Stephanie Leeper, Chrys Bertolotto, and Hallie Harness pinpointed the necessity to develop core messaging for Foodcycling and HHW campaigns which prompted brainstorming and research for messaging ideas.

After the overarching theme of “It’s So Easy” and the more specific messages on Paper, HHW, and Compost were approved by Sego, it was decided that creating a couple of short films on two of these topics would be effective in promoting these concrete messages without the issue of creating a film that is too lengthy. To accommodate all the materials development needed for these three themes, only one video will be created on “Putting Paper in Its Proper Place”.

Sustainable Community Stewards HHW Display:

The Sustainable Community Stewards have had a household hazardous waste panel on their outreach board since January 2013. It has provided a great starting point for meaningful conversations at outreach events. (Picture attached)



Outreach

Overview:

The combined efforts of staff, Master Gardeners and Sustainable Community Stewards from October – December 2013 resulted in 1541 contacts at seven different events. A highlight of the main events is described below.

4-H Youth Foodcycling Lesson:

Hallie Harness taught a lesson on compost and foodcycling at the Oct. 5th 4-H gardening program event. The participants learned about compost and decomposition, visited the education room waste stations to learn about what goes in each bin, played the Can You Sort game, and designed their own at-home or curbside food and yard waste composting system. The kids showed a strong knowledge about what goes in each bin during the sorting game and they enjoyed learning about the bugs and microorganisms that participate in the decomposition process.



Everett Community College Food Day: The Sustainable Community Stewards were invited to participate in the second annual EvCC Food Day. SCS utilized the “Can You Sort?” game as an incentive for students to receive their stamp in their food passport, and volunteers also talk with students in line about household hazardous waste, and foodcycling on campus as well as at home. 253 contacts were reached, 19 foodcycling brochures were handed out, 59 waste management booklets were distributed, and 42 hazardous waste bookmarks were handed out. A significant moment was when a woman walked up to the table, saw our hazardous waste panel, and said “I didn’t know you couldn’t throw computers in the trash!”

Waste Management Kitchen Container Distribution: Throughout October and November Master Gardeners and Sustainable Community Stewards worked diligently to stuff educational materials into packets, pass out over 1000 kitchen composters, and talk with Waste Management customers about



foodcycling and keeping plastics out of their food and yard waste bins. Sustainable Community Stewards enjoyed sharing their personal experiences with the recipients, and sharing their own ways to overcome common barriers to foodcycling such as messiness, which bags to buy, smell, and reluctant household members.

Waste Stream Education at Decision Point

The Waste Warriors team of Sustainable Community Stewards met in November, and created their 2014 plan for waste stream education. They plan to return to the events they attended in 2013 (Edmonds Waterfront Festival, Everett National Night Out), and added new events. This team will also be serving in an advisory capacity for several events including the Evergreen State Fair (ESF), The ESF Spring Fair, and

the Festival of the River. The next event they plan on attending is the Country Living Expo at Stanwood High School with food waste pick up from Lenz Enterprises. This effort helps festival goers correctly sort their trash into the three waste streams as well as helping festivals secure free or donated food waste collection dumpsters from haulers.

Events:

1. 4H Gardening Day (Hallie Harness): October 5, 2013
2. Monroe Rotary (Howard Voland): October 23, 2013
3. Everett Community College Celebrate Food Day (Sustainable Community Stewards): October 24, 2013
4. Kitchen Composter Distribution- Week Days (Master Gardeners): October 28 – November 2, 2013
5. Sound Living: A One Day University (Sustainable Community Stewards): November 9, 2013
6. Kitchen Composter Distribution – Weekend / Weeknights (Sustainable Community Stewards): November 11 – November 13
7. Focus on Farming (Hallie Harness): November 21, 2013

Total Contacts: 1541

Volunteer Training

Planning for the 2014 Sustainable Community Stewards training began in October, and recruitment began in November. Press releases, fliers, and emails were all sent out to local papers, and Stephanie Leeper attended the Snohomish County Green Drinks in December for further recruitment. Topics picked, presenters were secured, and relevant materials were collected for the supporting materials binder. Recruitment will continue in January, the binder will be finalized, and the class will begin.

The Sustainable Community Stewards and Beach Watchers also took a field trip to the Qualco Biodigester, and learned about how the system was built, how it currently operates, and what the future plans are for the biodigester. Daryl Williams from the Tulalip Tribes gave the history of the project and the tour. It was a great continuing education opportunity, and another option for sustainably repurposing food waste.



In addition, another “Outreach Educator Training” is planned for February 8, 2014 inviting all Extension volunteers. Volunteers will become familiar with the messages of the programs as well as how to maximize their impact at festivals in the year ahead. Howard Voland, Master Gardener Coordinator and Chrys Bertolotto have been the leads on this training.

Demonstration Gardens

Stephanie Leeper met with the Growing Groceries team in November to discuss the demonstration gardens. Great feedback was gleaned from this meeting. Many of the garden leaders said their garden could benefit from signage including answers to the following questions:

- How is compost made?
- What does compost do for a garden?
- What's in compost that makes it so beneficial?

The garden leaders also mentioned the need for signage in other languages such as Russian and Spanish. Options for this will be explored by staff. One garden leader was also interested in utilizing compost in their community garden as well. The next step to create outreach materials addressing these questions, and include information about compost, and present them to the garden leads.

Evaluation

Evaluation plans have been roughed out to align with the three themes of the program in 2014 and early 2015. A pledge-based system will allow each volunteer team to make a commitment to one of the three campaign themes and also provide us with email and / or telephone number to conduct follow up surveys. These surveys will ask questions on changed behaviors. The Household Hazardous Waste evaluation will rely on a partnership with the Drop-off facility staff to document how many of our contacts actually go to the facility. The pledge will be incentive by the potential to win items in quarterly raffles and immediate gift of a sticker. Evaluation questions and pledge language will be finalized in the first quarter of 2014.

It's So Easy Campaign
DRAFT Outreach Plan
January 9, 2014

Target Audience:

Families of Snohomish County.

Overarching Campaign: It's So Easy

Theme: It's So Easy – this tag should be in all our outreach materials, to tie everything together and should permeate the attitude of the campaign.

Activity:

1. It Was Easy Pledge: Create a raffle award for families who participate in more than three pledge / photo contest activities. This would be planned starting in 2015.
2. Take advantage of Master Gardeners and Sustainable Community forums, facebook pages, Master Gardener Foundation, Foundation Grantees, volunteer web sites, etc. to spread messages more deeply into volunteer force and community.

Material Development: "It's So Easy" Banner for Sustainable Community Stewards Display

Individual Campaign Activities:

Put Paper in its Proper Place

Lead Program: Sustainable Community Stewards

Desired Behavior: Proper paper recycling in all forms

Addressed Items in Waste Stream: cups, food-soiled paper, other paper waste

Activities:

1. The Toss Game: Adapt the "Can You Sort" game to include more paper products and fewer items that are not our target waste streams. Encourage people to sign the "Put Paper In Its Proper place" pledge that includes information on where different types of paper go. (relates to Activity 2).

Material Development: Create a 1/3 page pledge / information piece on where different paper types go and link to video, to be inserted in foodcycling brochure. **Distribute paper-oriented stickers to go on food and yard waste containers.** Create a poster for Sustainable Community Stewards on this campaign. Develop one 1 – 3 minute video on papercycling.

Pledge Language Option: I Pledge to Put All Paper in Its Proper Place.

2. Compost: You get what you put into it OR Be a Foodcycler- It's so Easy.

Lead Programs: Master Gardeners and Sustainable Community Stewards

Desired Behaviors: 1) Put proper items in food waste container (SCS) 2) Use compost in your garden / landscape (MG).

Addressed Items in Waste Stream: Food (Going In) and Compost (as an end product)

Activities:

1. Use Compost: It's So Easy: Master Gardeners will promote the "use compost" part of the food cycle. They will do this by sharing the benefit of landscapes in a garden (maintenance, watering, productivity, appearance...), weave compost use into many answers, share discounts or "compost bucks" redeemable at certain venues, **Waste Management foodcycle stickers (?)** and encouraging completion of a pledge. Foodcycle stickers will be given to everyone who completes a pledge. Lastly, Master Gardeners will share the Compost Photo Shoot (need snazzy name) that shows people with or enjoying the rewards of using compost. The venues that this will be included are specialty clinics (MG and RG / NYC), Office Clinic, Plant Sale and the Vegetable Planting Winter Series on 3/28/2014.
2. Fruit Sticker Art (tentative): Sustainable Community Stewards will have the option to select and create this activity during the 2014 training, and carry it on afterwards. The basic premise is to get families to collect their fruit or food stickers and somehow get some recognition or chance of prizes for their creative use of these stickers. Fruit stickers will be our gateway into discussing the need to carefully sort the waste stream. The current intention is to involve some type of photo pledge that we can post on the WSU website. There is high probability that, if selected, Sustainable Community Stewards will greatly modify this concept. If it is not selected, it will be proposed again with the 2015 Class

Material Development: Compost coupon / Compost Bucks approval / creation. Website content and page for Photo Shoot contest. Interpretative materials (for display and clinic boxes, talking points) for Master Gardeners on benefits of compost. Review / Edit Fruit Sticker promotional materials from Sustainable Community Stewards. Create web portal for topic and photos. Consider making a button "Ask me about Compost" for MGs.

Pledge Language Options: I pledge to be a Food Cycler by: ___ putting food waste in its proper place; or ___ using locally produced compost in my yard (give them check off option so they can select).

3. Keep Your Kids Safe and Cupboards Uncluttered – It's So Easy

Desired Behavior: Go to the County drop-off facility.

Lead Programs: Master Gardeners (Beach Watchers as back up)

Addressed Items in Waste Stream: Household hazardous waste, specifically yard chemicals (MG).

Activities:

1. Distribute pledge and promote going to drop off facility. Get two chances to win prizes. Incentive: Create small pledge (I pledge to keep my kids safe and cupboards uncluttered) that is stapled to red cards and handed to facility attendants upon drop off to be entered in to raffle. Raffle items include green cleaning kits (for each event) and quarterly dinner / movies. Try and provide clean green recipe cards to all who sign pledge.

44 Master Gardener Clinics will focus on this topic with MG interns (newly trained) being specially trained on the topic on April 24. Interns will have a HHW kit to bring to all clinics. This should cover 70 – 80% of all clinics. The office clinic will also cover this topic and there will be information at the Bugs Winter Gardening Series with Cisco on March 14th.

Materials Development: Eco Cleaning Kits made of readily available items (includes recipes – tentative), pledge card to be stapled to County HHW red cards (could adapt red cards). Create two-minute video on ease and benefits of using drop off facility. Make arrangements with Facility to request and store pledge cards for project.

Pledge Language Options: I pledge to go to the County Drop-Off Facility.

Pledge Incentives:

Provide Quarterly Drawings for Family Friend Incentives such as movie tickets, tickets to Lynnwood Arcade or Bowling / Skate Rink, Restaurant Certificates, Wild Waves admissions in summer, Free Pumpkin Picking at local Farms in Fall, one grand prize for those who complete all pledges (free family cruise? \$X00 gift certificate at grocery store, free landscaping design / service?).

Impact Evaluation:

Develop telephone interviews / email surveys. Email evaluations to be sent monthly after a two month lag from contact. Volunteers to conduct telephone surveys to those who haven't responded from our office quarterly (using script). Develop distinct evaluation questions for each pledge with some questions that overlap.

Timeline: All deadlines by end of quarter unless otherwise stated.

Activities	4Q 2014	1Q 2014	2Q 2014	3Q 2014	4Q 2014	1Q 2015	2Q 2015
Material Development	Plan	All Pledges; Display Materials; Papercycling 1/3 page insert, Mini-Flyer on compost benefits	Web Page Updates by 4/30/2014; Paper Video	<i>Compost Photo Content Submission Notice / Web Portal</i>	Convene project leads to plan materials Updates; "It Was Easy" materials	Update Pledge and Display materials	A BREAK!
Advanced Volunteer Outreach Training	Plan	Hold on 2/8/2014;			Plan for 2015	Hold	
Paper	Plan	Adapt Toss Game; Select Outreach Venues	Implement	Implement	Implement; Assess	Refine; Plan	Implement
Compost Festivals	Plan	Compost Bucks Solidified; Select Outreach Venues; confirm	Implement	Implement	Implement; Assess	Refine; Plan	Implement

		foodcycle stickers					
Compost Photo Contest		Plan	Launch	Run	Close; Assess	Decide if Running in 2015	
Fruit Stickers (confirm in February)		Plan by SCS	Implement; Finalize outreach materials	Implement	Complete; Evaluate Outcomes	Decide if running in 2015	
Kids / Cupboards	Plan	Eco-Kit Creation; Plans made with Facility	Implement	Implement	Wrap Up	Refine	Implement
It Was Easy					Plan	Advertise	Advertise
Evaluation	Plan	Finalize Questions / Process; Secure Prizes	Implement; Assess Outreach	Implement; Assess Outreach/ Advanced Training	Implement; 2014 Report	Refine 2014 Eval Plan; Secure 2015 prizes	Implement; Assess Outreach

Relevant Facts to incorporate into materials / planning:

- 30% of landfill is paper (includes office sources).
- 27% residents have yard waste containers.
- 70% know foodcycling is available
- 97% have some food-soiled paper in garbage
- About ½ say they know where it goes.
- 10 pounds of food wasted per week for a household of 4

Materials to Be Developed: Embed QR Codes into documents

Compost: Talking points, Display panel for MG display, perhaps w/before and after pics of lawn treated with compost, perhaps a focus on lawns, small flyer, Compost Bucks Coupon (if we use it), Information about Compost Photo Submission, web updates, Ask Me About Compost buttons

Pledges: 3 Pledges for compost use; HHW drop-off, Paper in Proper Place

Papercycling: 1/3 page insert, web content, Update Can You Toss Game?, 1 -3 minute video

Household Hazardous Waste: 35-45 HHM Kits for MG interns including pledge, HHW cards, laminated 8.5"x11" information sheet for table, Incentive info, info about campaign, tracking/debrief sheets, Green Cleaning Kits (tentative)

Materials / Resources Requested from Partners:

- Foodcycler Stickers from WM?
- Put Paper in Its Proper Place Sticker by County (to be designed and produced?)
- Participation in Compost Bucks Program?

Composting Messaging Considerations (from MG):

- Most of the folks that talk with Master Gardeners are fairly new gardeners and often new to the region. They typically come looking for a quick, easy answer.
- Discounts may not be able to be offered in retail stores.
- It may be difficult to differentiate local generated compost from any compost. Compost bucks / discounts will drive people to local vendors.

- Questions often asked about compost are 1) How much compost to use? 2) Is compost safe? 3) How do we apply compost? 4) How do I keep residents out of my compost? 5) Do I need different types of compost for different types of plants? 6) How do I apply compost? Is compost fertilizer?

Ideas for the Future:

Master Gardeners take a food cycling/ compost slide show on the road if staff creates it.

Create an app for all these pledges?

Connect to Growing Grocery mentor program (focused on vegetable gardening) to embed messages into the mentor mindset.

Compost in Agriculture: Q4 Second Progress Report of 2013-2015 CPG Grant Cycle

(Oct. – Dec. 2013)

Jan. 16, 2013

Fourth Quarter 2013 Compost in Agriculture Updates:

- Analyzed data from the 2013 Carleton Farm Sweet Corn research trial and prepared updated presentation for the upcoming Compost Workshop and Field Day.
- Hosted the Oct. 7 Compost Workshop and Field Day in Stanwood, WA at the Stanwood Fairgrounds with field visits to Lenz Enterprises compost facility and Hazel Blue Acres Farm, 60 + attendees.
- Collected water infiltration data at the Werkhoven field corn research site.
- Compost Outreach Coordinator Hallie Harness attended the Washington Organics Recycling Council (WORC) Compost Facility Operators Training in Puyallup, WA Oct. 14-18th.
- Post-harvest soil sampling was completed at Carleton and Werkhoven research sites.
- Created Google Docs partner sharing site for posting quarterly reports, grant agreements, partner contact information, the program funding timeline schematic, demonstration trial results, and more.
- Collaborated with Cedar Grove, Snohomish County SWD, the Snohomish Conservation District, and WSU Extension to draft and review the *CPG and WSDA Grants Composter Conditions* document detailing the conditions for composter participation in the program, securing the provision of compost for research and demonstration trials, setting goals for fall compost applications, and lining out details to be included in farmer agreements as requirements and recommendations for farmer participation in trials. This document is available on our partner sharing site.
- Began work on Snohomish County Agricultural Compost Research and Outreach Project (SCACROP) Handout for Focus on Farming Conference. Handout includes a description of the program, results from research and demonstration trials, farmer survey responses, lessons learned from the program, and information about how to get involved in the program.
- Began compiling a list of farm contacts to recruit for participating in the 2014 trials. Sources include the Snohomish County Growers Alliance and the Puget Sound Fresh guide.

- WSU Extension, Lenz Enterprises, and several participating farmers corresponded with journalist Sylvia Kantor, who produced a WSU *Green Times* online news forum article. Article is available online-<http://us5.campaign-archive1.com/?u=3cd4b2a328519c34e51f46c1d&id=95adce33cc&e=73485ebf82>
- Additional press coverage for the WSU Compost Outreach Project resulted from the *Green Times* article including articles in *Capital Press* by Steve Brown- <http://www.capitalpress.com/article/20131118/ARTICLE/131119906> and *The Grower* by Vicky Boyd- <http://www.thegrower.com/news/Composted-yard-waste-benefits-growers-say-studies-232069121.html> . Each article provided contact information for farmers interested in participating in the program.
- Developed a Survey Monkey post-harvest survey to evaluate the 2013 compost demonstration trials. Survey was distributed to 33 farmers and was completed online and by phone, 30 farmers responded.
- Compost Outreach Coordinator worked with Snohomish County graphic design personnel to develop a new recruitment poster for display at the 2013 Focus on Farming Conference.
- Conducted research on fall application of compost and compost nitrogen mineralization to ensure *Conditions* document accurately reflects compost Best Management Practices (BMPs).
- Conducted research and compiled information to be included in the Recommended Compost BMP Guide that will be provided to participating farmers.
- WSDA Specialty Crops block grant agreement was signed by Washington State University and made available on the Google Docs partner sharing site.
- Focus on Farming SCACROP Handout was completed and approved by partners and made available on the Google Docs partner sharing site (attached).
- WSU Extension Snohomish County hosted a booth at the annual Focus on Farming Conference with a significant focus on the WSU Compost Outreach Project. The SCACROP Handout, SCACROP recruitment poster, and an email sign-up sheet for interested farmers were utilized and Hallie spoke with 50+ passersby and recruited 5 new farmer participants.
- *CPG and WSDA Grants Composter Conditions* document was reviewed and approved by all participating composters and made available on the Google Docs partner sharing site (attached).
- An excel document tracking sheet for gathering information from the compost trials was developed by Hallie and approved by Cedar Grove, Lenz Enterprises, and Bailey Compost (attached).

- Completed first draft of Recommended Compost BMP Guide and Farmer Agreement for participation in compost demonstration trials.
- Created job description for assistant Compost Outreach Coordinator position and conducted interviews, Dec.
- Hired Julie Kintzi to coordinate CPG trials, recruiting farmers, and drafting reports for non-specialty crop trials, anticipated start date- Jan. 6.
- Created pre-survey for information gathering from farmers during first site visit

Major Activities, Significant Results, Major Findings, and Key Outcomes:

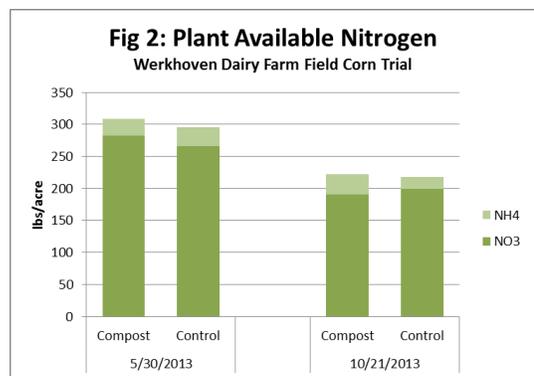
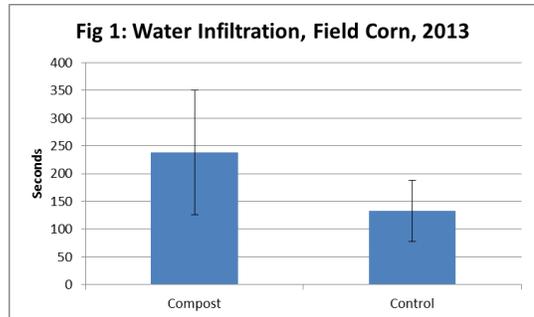
During November of the fourth quarter of 20142013, the WSDA Specialty Crop Block Grant and the King County SCACROP agreement were signed by Washington State University and put into action. Currently the three funding sources for the Snohomish County Agricultural Compost Research and Outreach Project are active.

In October, the Compost Outreach Project hosted a Compost and Soils Workshop and Field Day in Stanwood, Washington. The event included program presentations from WSU Extension SCACROP staff (Hallie Harness and Andrew Corbin), Doug Collins, Andy Bary and Peter Moon presented on soil quality and composting methodology. Afterward, brief operation overviews were provided by Cedar Grove and Bailey Compost. After the sessions, field site visits included a tour of the Lenz Enterprises compost facility and a visit to Hazel Blue Acres farm to observe the compost trial on hazelnut trees. Also at the farm site, three farmers who had participated in the compost trials shared their experience with the trials in a panel discussion. The goal of the Workshop was to compare and contrast on-farm composting with commercial composting systems, and provide SCACROP outreach to our stakeholders. Workshop attendees were provided information to increase their knowledge about the value of commercial compost.

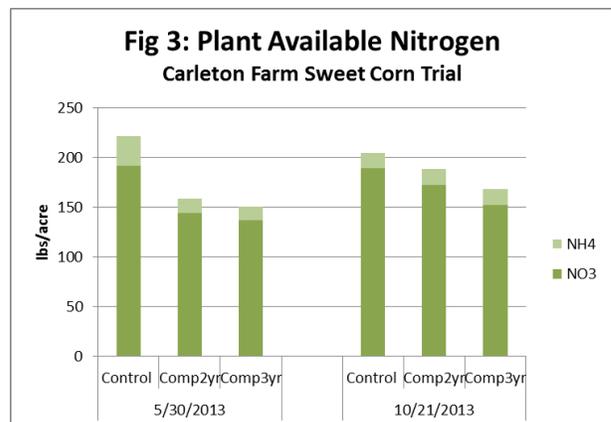
Evaluations from the workshop revealed that the majority of attendees were from Snohomish County, with a few individuals from Skagit, King, Island, and Whatcom counties. This indicated a good reach of advertising and accessibility for attendees. Of the twenty individuals who turned in evaluation forms, nine (45%) defined themselves as being gardeners and 30% (seven) farmers. Remaining evaluation respondents were students and agricultural professionals. Evaluations revealed that 75% of respondents were “very likely” to use compost as part of their land management plan. Respondents’ take home messages from the day included the value of compost as a soil amendment, especially when used in conjunction with other amendments, the significance of the compost C:N ratio, the importance of repeat compost applications, how compost can benefit multiple crops, and the difference between aerated static piles and turned windrows during the composting process.

2013 research trials were nearly completed in the fourth quarter with water infiltration testing completed at the Werkhoven field corn site and post-harvest soil sampling conducted at Werkhoven and Carleton farm sites. Carleton Farm infiltration rates will be collected in the early spring.

Werkhoven infiltration results were not significantly different between treatments, but the trend showed the opposite of what was expected- longer infiltration rates in the compost treatment with an average of 238.6 seconds, and shorter infiltration rates in the no-compost control with an average of 133.2 seconds (Fig. 1). This may be attributed to the short-term increase in traffic to spread and incorporate the compost. Werkhoven soil tests results for plant available nitrogen (PAN) post-planting and post-harvest are depicted in Figure 2. Werkhoven field corn yield data is pending analysis.



Carleton Farm soil tests results for plant available nitrogen post-application and post-harvest are depicted in Figure 3. Trend shows the control plot having the most PAN before planting and after harvest. This pre-plant (5/30) result could be attributed to the darkening of the soil where compost was added, heating up the soil faster than the control, and volatilizing N during the two weeks pre-plant. Post harvest results show too much residual N (especially Nitrate N), this may be a result of over application of N fertilizer during sidedress.



With the goal of securing the provision of compost for 2014-2016 compost trials and ensuring that compost producers receive desired outcomes of the program, Denise

Bartlett from Cedar Grove composting began drafting a *CPG and WSDA Grants Composter Conditions* document. WSU Snohomish, Snohomish County, and the Snohomish Conservation hosted two meetings to review the document and make changes to ensure the feasibility of the conditions and the alignment of the conditions with grant agreements and compost use best management practices (BMPs). WSU drafted a complete version of the document and Lenz Enterprises and Bailey Compost approved the document. The final version was posted on the Google Docs sharing site.

Funding was secured from Waste Management to ensure all CPG trials will have double screened compost. Leif Fixen with the Snohomish Conservation District requested funding from the Washington Conservation Commission to upgrade the WSDA compost to double screened and fund an additional fall application compost research trial. If funding is not secured from the WA Conservation Commission, we will pursue this funding from Waste Management to ensure the compost is of the highest quality for all trials.

A post-harvest survey was distributed to compost trial participants. Survey results are summarized in the Post-Harvest Survey Results document (attached).

New outreach materials were created for the Focus on Farming conference in Nov. 2013. A new recruitment poster was designed with the assistance of Snohomish County graphic design personnel. Hallie, the Compost Outreach Coordinator compiled information from the research and demonstration trials into an informational handout which included an overview of the program, results from trials, lessons learned, and information on how to get involved in the program. The new materials were available at the WSU Extension Snohomish County booth during the conference which was staffed throughout the day. Fifty contacts were made and five new farmers were recruited.

Current activities include the development of the Recommended Compost BMP Guide to be provided to participating farmers. This document gives steps and resources for incorporating compost into nutrient management plans including how to calculate compost application rate based on plant nutrient needs and steps to take to ensure the best outcome of the compost trials. This document also gives recommendations and requirements for fall compost applications. A rough draft of the document is completed and will be finalized with assistance from the Snohomish Conservation District.

Additional materials in the development stage include the tracking sheet for compost trial data and metadata collection. The tracking sheet has been updated to include areas of focus that were outlined in the composter Conditions document. Lenz and Cedar Grove have approved the document and Bailey compost has been prompted to review the document.

Early stages of farmer recruitment are underway including compiling a list of potential participants. The Farmer Agreement for participation in compost

demonstration trials, which includes details outlined in the Conditions document, is currently underway and a farmer recruitment script is being developed.

In December we created a job description for an Assistant Compost Outreach Coordinator for work on the CPG, non-specialty crop trials. Farmland preservationist Julie Kintzi was interviewed and accepted the position. She will start farmer recruitment for 2014 trials in January.

Andrew Corbin and Hallie Harness were invited and will be presenting the SCACROP at the US Composting Council annual conference in Oakland, CA in January 2014.

Products Produced and Information Sharing Opportunities:

10/2013: Hosted Compost and Soils Workshop and Field Day in Stanwood, WA

10/2013: Infiltration data was collected at Werkhoven field corn research trial and post-harvest soil tests were conducted at Werkhoven and Carleton Farm sweet corn trials

11/2013: Received notice that the WSDA Specialty Crops Agreement and the King County agreement were signed by WSU Pullman

11/2013: Drafted, revised and completed *CPG and WSDA Grants Composter Conditions* document

11/2013: Created new outreach materials including a poster and handout for recruitment activities at Focus on Farming

11/2013: Staffed a booth at Focus on Farming

12/2013: Completed first draft for Recommended Compost BMP guide, excel tracking form for demonstration trials, and Farmer Agreement for participation in trials

12/2013: Created a Pre-Survey for information gathering during farm site visit

12/2013: Completed first draft Recruitment Script

Lessons Learned:

The Compost and Soils Workshop and Field Day was a success and all agenda items were completed. In the future we will provide more time for Q&A sessions and include slightly fewer presenters to allow more flexibility in the schedule.

For 2014 trials, especially research trials, we will present farmers with posters and/or yard signs that can be viewed by the public to highlight the farm's use of local compost. A small graphic and QR code may be developed as well that can be posted on farm websites. This way we can generate a movement around the trials and farmers can highlight their participation in the trials as a promotional tool. This has been expressed as a goal of several project partners and farmers.

An additional goal for 2014 trials is to post information to Red Rooster Route and Snohomish Pumpkin Festival websites because the majority of these cooperative farms are compost trial participants.

CPG compost trial participants for years 2014 & 2015 will be recruited to participate for two consecutive years to facilitate information gathering of the effects of multiple years of compost application and the goal is to facilitate on-going demonstration trials over two years.

Partner expectations can be better managed with frequent information sharing opportunities and meetings, effort made towards keeping everyone in the loop with new findings and program information, and consistent communication and gathering of partner feedback and input. Additionally, all agreements should be documented and tracked so they can be used as a reference when needed.

When requesting additional funding from partners for such things as additional sample analyses or workshop sponsorship, requests should be made well in advance and line item budgets should be provided in addition to contribution request letters.

Findings for infiltration rates at Werkhoven Dairy Farm were opposite of expected. Compost is known to increase water infiltration, but we observed slower infiltration in the compost treatment. This could be due to compaction from additional passes made with machinery when applying compost.

Carleton post-application and post-harvest soil tests also revealed results that were opposite of expected. The control plot had the most plant available nitrogen (PAN) in both soil tests and the lease PAN was in the three years of compost treatment.

In future trials, especially research trials, beet crops for seed should be targeted because beet crops suffered this year, yielding only 75% of the average in Skagit County, and Western Washington produces 95% of U.S. and 50% of worldwide table beet seed supplies.

Impact Metrics:

- 60 people attended the Compost and Soils Workshop in Stanwood WA
- 30 out of 33 farmers with active compost trials responded to the post-harvest survey
- 19 farmers from survey shared that they are willing to participate in the demonstration trials again, 9 are undecided and only 2 farmers are not willing to participate again
- 50 contacts were made at the Focus on Farming Conference and 5 new farmers were recruited for compost demonstration trials
- Approx. 5 farmers have been recruited for participation in 2014 CPG compost trials

Snohomish County Agricultural Compost Research and Outreach Project, WSU and Composter Agreement:

Purpose:

This document will guide the 2013-2016 Compost Grant Projects, including detailing the conditions for composter participation in the program, securing the provision of compost for research and demonstration trials, and ensuring partners receive desired outcomes of the program.

1) Snohomish County Coordinated Prevention Grant

Grantor – Department of Ecology to Snohomish County Solid Waste Division

Grant Administrator: Sego Jackson, Snohomish County Solid Waste Division

Grant duration: July 1, 2013-June 30, 2015

Grant Details and Composter Conditions:

*Note: "cy"= cubic yard of compost

- 875cy/year (~17.5 farms @ 50 cy/farm) x 2 years = 1750 total cy (Cedar Grove - CG).
- 875cy/year (~17.5 farms @ 50 cy/farm) x 2 years = 1750 total cy (Lenz).
- Compost
 - Delivery cost (covers delivery for single-screened product): Cedar Grove delivery @ \$5/cy, Lenz delivery @ \$250 per any-sized (30-60cy) load, 2 hour turn-around time (required by Lenz), Bailey will not be contributing to this effort, with all the Bailey provided compost going to the Specialty Crops grant activities.
 - Waste Management will cover additional cost of \$5/cy upgrade to double screened compost (maximum of \$8750 per year for CPG project). WM will be billed per cubic yard (not per load) for this service.
- The intent is to match farms with the nearest compost facility.
- No WSDA registered organic product is available for this program.
- All demonstration trials.
- May be used on any crops.
- May be multiple crop demonstrations on one farm.
- Spring 2014 and 2015 applications; the goal is for farmers to incorporate compost into their soil 2-6 weeks prior to planting. WSU will recommend and request that farmers allow this window of time for nutrients in the compost to mineralize and become available to the crops. If unforeseen issues arise that prohibit this ideal application timeframe, the nature of the challenges will be documented and noted in results and observations, and will made available to the composters. Practical application timeframes, with these conditions in mind, will be acceptable.

- Fall 2014 application; goal of 10 (5 CG and 5 Lenz) fall compost applications per year on or prior to planting over-winter cover crop for subsequent spring target market crop. Compost must be applied prior to Oct. 31st. A cover crop must be present or planted in the amended plot, unless the compost is applied to perennial crops, sod, or pasture that provides similar water quality protection. Fall compost applications are only allowed in accordance with farm nutrient management plans facilitated through the Snohomish Conservation District.
- Compost deliveries will be scheduled as far ahead as possible, with spring deliveries (minimum) 1-2 weeks out during the heaviest overall delivery time for compost producers.
- Rather than BAU (“business as usual”) and BAU+Compost; the goal is to incorporate compost into farmers’ nutrient management plans (farmer maybe over applying some nutrients with compost addition. Also, we want farmers to see economic benefit/cost savings of reduced use of other fertilizers, etc.). WSU will recommend that farmers conduct pre-application soil tests and utilize provided resources and services to follow the steps needed to apply compost as a recommended treatment for their nutrient management plan. Best Management Practices (BMP) information and recommended resources will be provided. Composters will provide farmers and WSU weight and estimated volume of each load delivered. Farmers may choose this option or may choose to apply it in the BAU (“business as usual”) and BAU+Compost method.
- WSU and partners to have up-front agreement with participating farmers.
 - Farm information (name, location, crop(s) in compost trial/demo, date compost received, date applied, how applied, rate applied, crop planting date(s), soil tested pre planting? Soil type? Other inputs? Excel database tracking form will be developed by WSU and approved by Lenz, Cedar Grove, and Bailey Compost.
 - If farmer conducts soil testing pre and/or post compost application, they will be encouraged to share the results with composters during the post-harvest meeting. Surveys will inquire about changes in soil conditions attributed to the compost application.
 - As a condition of participation in the trials, farmers will agree to participate in a post-harvest meeting/debrief with the corresponding compost producer. Compost producers will be responsible for scheduling these meetings with farmers and meetings will take place in a manner/location/timeframe that is convenient for the farmer and composter.
- Quarterly written, detailed reports of all demonstrations by WSU-ext.
 - Report Period: July 1 – Sept. 30, 2013 Due Date: Oct. 31, 2013
 - Report Period: Oct. 1 – Dec. 31, 2013 Due Date: Jan. 31, 2014
 - Report Period: Jan. 1- Mar. 31, 2014 Due Date: Apr. 30, 2014
 - Report Period: Apr. 1- June 30, 2014 Due Date: July 31, 2014
 - Report Period: July 1 – Sept. 30, 2014 Due Date: Oct. 31, 2014
 - Report Period: Oct. 1 – Dec. 31, 2014 Due Date: Jan. 31, 2015
 - Report Period: Jan. 1- Mar. 31, 2015 Due Date: Apr. 30, 2015
 - Report Period: Apr. 1- June 30, 2015 Due Date: July 31, 2015

2) WSDA Specialty Crop Block Grant

Grantor – USDA via Washington State Department of Agriculture

Grant duration: Oct. 1, 2013- Sept. 30, 2016

Grant Details and Composter Conditions:

*Note: “cy”= cubic yard of compost

- Cedar Grove to be involved @450 cy/year (9 farms @ 50 cy/farm) x 3 years = 1350 total cy providing 1/3 of volume for the program.
- Lenz to be involved @650 cy/year (13 farms @50 cy/farm) x 3 years = 1950 total cy (making up for Bailey’s < 1/3 of total).
- Bailey to be involved @250 cy/year (5 farms @ 50 cy/farm) x 3 years = 750 total cy. All Bailey compost will be single screened.
- Compost
 - Delivery cost, included in the grant (covers delivery for single-screened product): Cedar Grove delivery @ \$5/cy, Lenz delivery @ \$250 per any-sized (30-60cy) load, 2 hour turn-around time (required by Lenz), Bailey compost delivery provided by Topsoils Northwest and arranged by WSU.
 - Lenz and CG: Option for farmers to upgrade to double-screened compost @ additional \$5/cy (to be billed directly to farmer – will need credit card/billing information set up prior to delivery). If funding for double screened compost is obtained, this option will not be offered. Bailey compost will be single screened only.
 - Cedar Grove only- farmers may also elect to receive a half load (20-25cy) of double screened compost instead of the full 50 cu yd. In this case, composters will receive full \$250 delivery fee and there will be no charge to the farmers. If funding for double screened compost is obtained, this option will not be offered. Bailey compost will be single screened only.
- 3 research trials per year (goal: 1-Lenz compost, 1- Cedar Grove compost, 1-Bailey Compost)
- 25 demonstration trials per year including 5 in Northern King County
- The intent is to match farms with the nearest compost facility.
- No WSDA registered organic product is available for this program.
- Specialty crops only in Snohomish County
- Spring 2014, 2015, and 2016 applications; the goal is for farmers to incorporate compost into their soil 2-6 weeks prior to planting. WSU will recommend and request that farmers allow this window of time for nutrients in the compost to mineralize and become available to the crops. If unforeseen issues arise that prohibit this ideal application timeframe, the nature of the challenges will be documented and made available to the composters. Practical application timeframes, with these conditions in mind, will be acceptable.
- Fall 2014 application; goal of 10 (5 CG and 5 Lenz) fall compost applications per year on or prior to over-winter cover crop for subsequent spring target market crop. Compost must be applied prior to Oct. 31st. A cover crop must be present or planted in the amended plot, unless the

compost is applied to perennial crops, sod, or pasture that provides similar water quality protection. Fall compost applications are only allowed in accordance with farm nutrient management plans facilitated through the Snohomish or King Conservation District.

- Compost deliveries will be scheduled as far ahead as possible, with spring deliveries (minimum) 1-2 weeks out during the heaviest overall delivery time for compost producers.
- Rather than BAU (“business as usual”) and BAU+Compost; the goal for demonstration sites is to incorporate compost into farmers’ nutrient management plans (farmer maybe over applying some nutrients with compost addition. Also, want farmers to see economic benefit/cost savings of reduced use of other fertilizers, etc.). WSU will recommend that farmers conduct pre application soil tests and utilize provided resources and services to follow the steps needed to apply compost as a recommended treatment for their nutrient management plan. BMP information and recommended resources will be provided. Composters will provide farmers and WSU weight and estimated volume of each load delivered. Farmers may choose this option or may choose to apply it in the customary BAU (“business as usual”) and BAU+Compost method.
- As per WSDA agreement, research trials will compare BAU (“business as usual”) and BAU+Compost treatments. For the research trials, WSU will analyze changes in soil conditions that are attributed to the compost application and this information will be shared with the composters.
- WSU and partners to have up front agreement with participating farmers.
 - Farm information (name, location, crop(s) in compost trial/demo, date compost received, date applied, how applied, rate applied, crop planting date(s), soil tested pre planting? Soil type? Other inputs? Excel database tracking form will be developed by WSU and approved by Lenz, Cedar Grove, and Bailey Compost. Surveys will inquire about changes in soil conditions attributed to the compost application.
 - During recruitment, farmers will be asked if they are willing to meet with compost producers post-harvest. Compost producers will be responsible for scheduling these meetings with the farmers who are willing and meetings will take place in a manner/location/timeframe that is convenient for the farmer and composter. WSU will organize additional information sharing opportunities, ex. workshops, field days, and focus groups for farmer-composter interaction as per WSDA plan of work.
- Quarterly written, detailed reports of all research and demonstrations by WSU-ext.
 - Report Period: Oct. 1 – Dec. 31, 2013 Due Date: Jan. 31, 2014
 - Report Period: Jan. 1- Mar. 31, 2014 Due Date: Apr. 30, 2014
 - Report Period: Apr. 1- June 30, 2014 Due Date: July 31, 2014
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 - Report Period: Oct. 1 – Dec. 31, 2015 Due Date: Jan. 31, 2016
 - Report Period: Jan. 1- Mar. 31, 2016 Due Date: Apr. 30, 2016

- Report Period: Apr. 1- June 30, 2016 Due Date: July 31, 2016
- Report Period: July 1 – Sept. 30, 2016 Due Date: Oct. 31, 2016

Compost Use in Agriculture, Research and Demonstration Project

This program is available to local farmers through a cooperative partnership of WSU Extension Snohomish County, Snohomish County, Snohomish Conservation District, Waste Management, and local compost producers Cedar Grove Composting, Lenz Enterprises, and Bailey Compost

November 2013



The Compost Outreach Project began in 2011 as a partnership between WSU Extension Snohomish County, the Snohomish Conservation District and Cedar Grove Composting. Cedar Grove wanted to tap into the agriculture industry as a market for their finished compost and WSU wanted to research and evaluate the benefits of commercially-produced food and yard waste compost in local crop production.



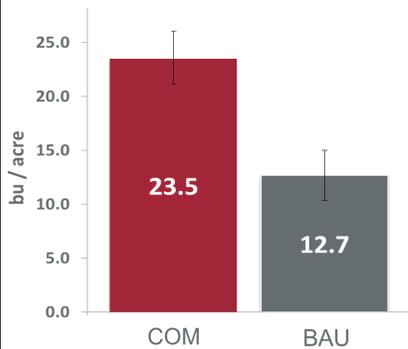
The Compost Outreach Project has expanded with diverse funding sources and partnerships. The two-part program aims to provide as many farmers as possible the opportunity to utilize the compost through on-farm Research and Demonstration Trials over a variety of cropping systems.

Research Results:

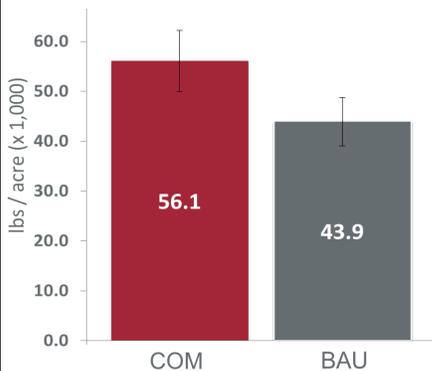
BAU =Business as Usual

COM=BAU + Compost

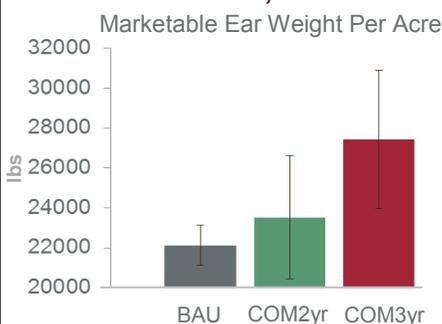
Triticale Yield, 2011



Pumpkin Yield, 2012



Sweet Corn, 2013



Research Trials:

- **Triticale, 2011** (18.5 dry tons of compost/acre*) - 100% increase in yield
- **Pumpkins, 2011 & 2012.** 2012- (27.5 dry tons/acre) - 20% increase in yield
- **Field Corn, 2012** (13 dry tons/acre) - No significant difference in yield
- **Field Corn, 2013** (7.25 dry tons/acre) - Yield results pending
- **Sweet Corn, 2013** (15 dry tons/acre) - 24% increase in weight of marketable corn ears between three years of compost treatment and control

* assuming 50% moisture content of compost

Demonstration Trials:

Lettuce Trial



- 59 trials (2011-2013)
- Farmers receive a donated ~50 cu. yd. load of compost and apply it alongside a business as usual (BAU) treatment
- Crops: Blueberries, raspberries, blackberries, hazelnuts, potatoes, hay, haylage, pasture grass, broccoli, lettuce, flowers (multiple species), pumpkins, turf grass, field corn, sweet corn, nursery and orchard trees, and more



**Are You a Local Farmer?
GET INVOLVED!**

For more information:

Visit the program website:
www.snohomish.wsu.edu/compost

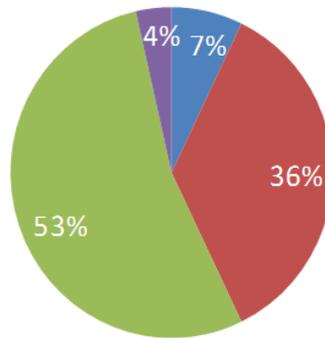
Or call the program coordinator:
Hallie Harness
(425) 357-6026
hallie.harness@wsu.edu

2013 Farmer Survey Responses:

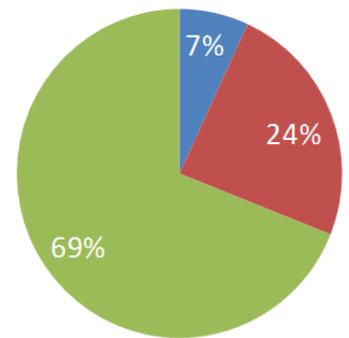
n=29

Effect of compost on crop production:

Effect of compost on soil quality:



- Somewhat Adverse Effect
- No Perceived Difference
- Improved
- Greatly Improved



Lessons learned from farmer correspondence and focus groups:

- Farmers are looking at compost as a substitute for poultry manure
- Farmers understand the benefits of increasing and maintaining organic matter in their soils, and see compost as a good method of doing so
- Many farmers are moving away from commercial fertilizers, but know that compost is not a direct substitute
- Several would not have tried compost without this program
- Barriers to compost use include spreading (time, equipment) and compost price
- Some farmers believe that compost use is more feasible in small scale specialty crop operations than large scale commodity crop farming

Summary of Post-Harvest 2013 Survey Results from Compost Demonstration Trial Participants

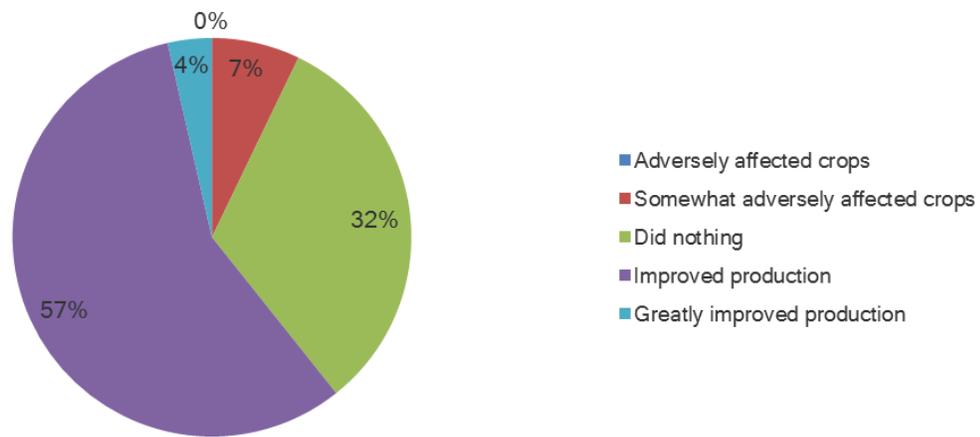
WSU Snohomish County, SCACROP program
November 2013
Hallie Harness

A brief Post-Harvest Survey was created in Oct. 2013 and distributed to farmers with active compost demonstration trials. Thirty-three compost trials were facilitated in 2013, and two additional rollover compost trials from 2012 were monitored as 2013 trials. Most farmers had completed the mid-season June survey, but at that time several farmers had reported that it was too early to determine the results of the compost trials. The June 2013 survey had a 97% response rate and the Post-Harvest 2013 Survey yielded a 91% response rate. The Post-Harvest 2013 Survey was designed to collect updated (post-harvest) observations from compost trials. Farmers whose trials were fully complete at the time of the June survey were not asked to respond again, and new farmer recruits as well as trials that began later in the season were asked to complete the longer version of the survey that asked questions about compost quality, compost application date and rate, as well as questions about dollar amount farmers were willing to pay for compost. All farmers were given the option of completing the extended survey if they wanted to share more feedback or their previous answers had changed.

CROP PRODUCTION

In June of 2013, 81.25% of farmers anticipated the compost would improve (or greatly improve) crop production. Actual end-of-season observations revealed that 61% of farmers observed that the compost had improved or greatly improved their crop production. Broccoli, kale, and cut flower crops showed observable increases in production. Dahlias showed mixed results with one farmer reporting better flowers in the compost treatment and another farmer observing the soils becoming drier in the compost treatment and the crop suffering from the heat and dry conditions. Pumpkin trials also saw mixed results with two farmers observing healthier pumpkin plants and one trial yielding no obvious differences. Several hay farmers (and one potato trial) observed modest improvements in yield. Of the farmers that noted no perceived differences in crop production, one mentioned the necessity for multiple years of compost application and one mentioned that he observed no suppression of weeds when applying compost as a mulch on blueberry plants.

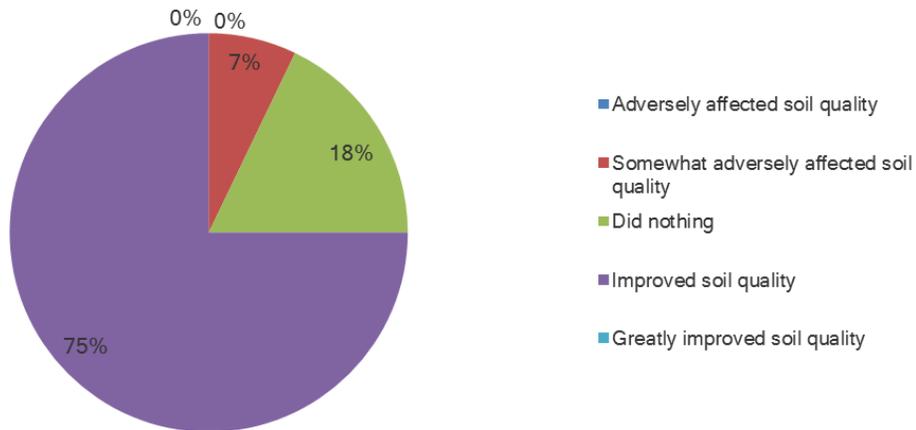
As it relates to CROP PRODUCTION, how did the compost affect your crop?



SOIL QUALITY

In June 2013, 78.13% of farmers reported that the compost improved (or greatly improved) their soil quality. Actual end-of-season observations revealed that 75% of farmers observed improvements in soil quality. Several farmers noticed an improvement in soil texture and tilth and many noted the addition of organic matter was beneficial to the soil quality. Of the farmers that reported an adverse effect on soil quality, one reported that his turf grass rolls were lower quality in the compost treatment.

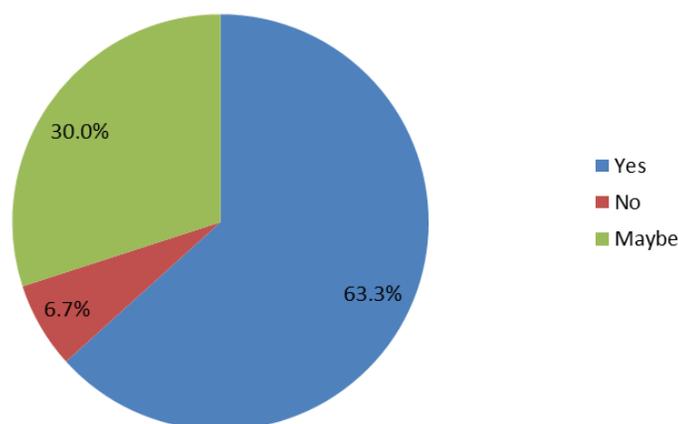
How did the compost affect your SOIL QUALITY?



FARMER PLANS FOR USING COMPOST IN THE FUTURE

For the Post-Harvest Survey only, demonstration trials were asked if they are interested in participating in the compost trials again. Only 6.7% (two) participating farmers were not interested in participating in the compost trials again. Nineteen farmers were interested in participating again and nine farmers were undecided. Although this survey only accounts for 91% of 2013 compost trial participants, this represents a significant positive outlook for continuing the compost trials and including farmers in multiple years of trials. Of the farmers that said they were "maybe" interested in participating again, one farmer noted that the compost is very labor intensive to apply on his blueberry plants. Two farmers that were not interested in future compost trials noted that the return on investment wasn't there to justify the time and labor required for spreading the compost.

Are you interested in participating in the compost trials again?



Combining June 2013 and Post-Harvest 2013 Survey results, representing 34 of the thirty-five 2013 demonstration trial participants, 43% of farmers have decided to incorporate compost as part of their regular land management practices as a result of their participation in the trials. Of the farmers who selected "NO", six reported that they were already using compost or already planning on using compost prior to the program. This means 60% of the participating farmers plan to use compost as part of their future regular land management practices.

Have you decided to incorporate compost use as a part of your regular land management practices as a result of your participation in this project?

