



ZERO-WASTE FOOTBALL

Project Precedents

Global Sustainability, Fall 2011

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ABSTRACT

The Project Precedents group was in charge of contacting other schools and athletics organizations that had already implemented some sort of zero-waste program. The areas of focus for gathering information were behavioral changes, product conversion, personnel involvement, and receptacle distribution. Contact was made via e-mail as well as telephone, and the results of these conversations were distributed amongst the rest of the zero-waste groups to provide them with a better idea of what did and did not work for other programs. A few toolkits were sent from the other organizations as well, and they have been summarized and categorized into the main areas of focus.

INTRODUCTION

An average college football game produces 50-100 tons of waste and is responsible for releasing 188-376 metric tons of carbon dioxide into the atmosphere. However, a reduction in the environmental impacts of these events is not only possible, but viewed quite favorably. According to a 2010 College Athletic Department Sustainability Survey, 79.5% NCAA schools athletic departments reacted positively to environmental initiatives. The EPA Gameday Challenge during October at colleges and universities implements waste-reduction programs during a home football game and track and report waste data. In 2010, 88 schools participated with over 2.8 million fans and diverted more 500,000 pounds of waste from landfills, which prevented nearly 940 metric tons of carbon dioxide from being released (Stats via Toolkit).

PERSONNEL INVOLVEMENT

Summary

One of the most critical aspects of the Zero Waste Initiative is personnel involvement. Personnel ranging from independent organizations to athletic departments play a significant part in making this project successful. Degree of involvement and the type of personnel varied across schools, yet this variation can be studied and tailored to a specific school based on that school's needs.

University of Colorado Boulder

Stats

Stadium Capacity: 53,613

Organizations Involved/Community Partners: Centerplate Inc., Eco-Cycle, White Wave Foods

Diversion Rates: 80-90%

- Volunteers monitored 25 locations within the stadium in order to help people correctly sort and dispose of their trash.
- Private concession vendor, Centerplate Inc. provided containers that were recyclable and compostable.
- Members of the CU's student government bought specialized compaction trucks in order to collect compostable materials
- White Wave Foods greatly sponsored the initiative through providing compostable food and drinks.

Challenges: Because many of the workers were temporary it was difficult to properly educate them about the actions of the Zero Waste Initiative. Also, due to the turnover of the workers indifference and this lack of effort inhibited efforts. Next, because so many organizations both within and outside the school were involvement at times cooperation between them presented a challenge.

Important Themes:

Organization from multiple places and areas were involved in the efforts. Thus due to the variety of those involved many different areas concerned could be targeted.

University of California, Davis

Stats

Stadium Capacity: 10,743

Organizations Involved/Community Partners: Waste Reduction and Recycling Organization, Sodexo, Grounds Division, Pride Industries, Solid Waste Division, stadium security

Diversion Rate: 89%

- Security personnel were responsible for checking people at the entrance in order to make sure that no food or drink was snuck in.
- Designated teams of people patrolled the stadium in order to keep the project running smoothly.
- Personnel would check trash bags in order to eliminate things that could not be compostable or recycled, generally food that was sneaked in.
- Personnel conducted compost audit after every game.
- Stadium staff sorted the compost carts.
- Staff and volunteers attended and monitored every game. They also ensured proper recycling, proper composting, and waste reduction. Attendance is important.

Challenges: The fans that brought it non-recyclable items to the games presented the biggest challenge to the UC Davis Zero Waste Project. Personnel, was very efficient in stopping many: however, items that were snuck in were still found during the waste audit.

Important themes: Community partners played an important role in UC Davis, especially Sodexo and Waste Reduction and Recycling association. However, one of the most important aspects that made UC

Davis successful was the attention to detail that the personnel involved displayed. The personnel not only patrolled the stadium during the game but also conducted audits after.

University of Michigan

Stats:

Stadium Capacity: 109, 901

Organizations Involved/Community Partners: Tuthill Farms and Composting, Student Sustainability Initiative

Diversion rate: 82.8%

- Volunteers monitored recycling bins and directed fans in throwing away and recycling their trash.
- High school students cleaned stadium and sorted trash.
- Volunteers provided the majority of the effort

Challenges: The major challenge was the lack of cooperation and involvement between major organizations such as the athletic department of University of Michigan. Whereas in places like Ohio State athletic department actively participated in the Zero Waste efforts here it did not. So, even though this particular school has been very successful in its efforts to divert waste there is still a lot of potential and room for improvement with increased involvement and participation from other members of the U Michigan community.

Important Themes: The major forces behind the Zero Waste Initiative at University of Michigan were all the volunteering groups. Here, volunteers provided the majority of effort. Also, instead of a single volunteering group participating in the Zero Waste project, a conglomeration of multiple groups joined forces in order to be successful.

Ohio State University

Stats

Stadium Capacity: 102, 392

Organizations Involved/ Community Partners: Sodexo, Waste Management, Department of Athletics

Diversion Rate: 90%

- Stadium managers and stakeholders were highly involved throughout the process
- Facilities management, administration and athletics personnel were all informed of the parts that they played.

Challenges: Even though similarly to UC Davis, Ohio State was supported by a food vendor Sodexo, because concessions staff varied from game to game they were not well informed about the initiative, and thus did not adequately contribute to the project. Volunteers, especially those working the concessions needed to be better informed in order to more effectively implement the program. Individual vendors also required similar information in order to contribute to the effort.

Important Themes: Ohio State was able to be highly successful due to the significant involvement and promotion of the project by the athletics department. Involvement from many other organizations and divisions was important in order to address all of the issues and implement positive change across all sectors related to the initiative.

Team	Attendance	Landfill*	Recyclables*	Compost*	Diversion rate
Akron	105,001	4.1	13.1	.8	77.4%
Toledo	105,016	4.8	8.4	.4	64.7%
Colorado	105,096	3.6	8.1	1.4	72.2%
Michigan State	105,306	2.2	7.8	2.4	82.8%

*Measured in tons
Source: Ohio State University

(image via Corey Hawkey)

Penn State University

Stats

Stadium Capacity: 107,282

Organizations Involved/ Community Partners: Boy Scout Troops, Student volunteers, management staff

Diversion Rate: 60%

- Waste management team collects special bins after games and delivers to recycling facility
- Volunteers are very involved in promoting participation and from helping people sort out the trash

Challenges: One of the issues was having enough volunteers involved, due to the significant part that they plan in recycling and compost collection.

Important themes: The majority of the success that Penn State was able to achieve stemmed from the massive participation of volunteers in this program. Unlike in other schools outside organizations were not particularly involved so reliance on volunteers was huge.

Seattle Mariners' Safeco Field

Stats

Stadium Capacity: Baseball-47, 117, Football- 30, 144

Diversion Rate: 80%

- The personnel don't monitor receptacles.
- Special interceptions personnel conduct a waste audit and sort the waste after games.
- Personnel fills out nightly reports after every game to chart progress and find ways to improve

Challenges: Personnel have to be very involved due to low commitment levels from the fans.

Conclusion: Based on the successful rates of diversion from the schools and the Safeco field it can be said that one of the major reasons that all were so effective in their waste-reducing objective was due to personnel involvement. A personnel of many different types participated in the efforts from large outside organizations to groups that were specifically unique to certain school or field. It can be said that the more organizations from both the outside and the inside of the university and field community are involved the more likely it is that the project will be more successful.

Major personnel contributors

- Volunteers
- Athletic department personnel

- Stadium workers/Facilities Management
- University organizations and groups
- Environmentally conscious external food vendors
- Composting organizations

Personnel involvement tips:

Approximate amount of personnel needed to carry out materials management duties inside per game based on The Collegiate Football Sustainable Materials Management Toolkit

- Smaller stadiums: 5-15 personnel
- Larger stadiums: 30-60 personnel

Ways to increase personnel involvement

- Educate and train employees
- Get student groups involved
- DO NOT vary personnel for each game, keep the same personnel in order to avoid possible confusion and inefficiency
- Reward student volunteers
- Foster effective communication between different organizations, collaborations and volunteering groups

BEHAVIORAL CHANGES

Summary

Besides all of the changes that are made to a football program to help make it more environmentally friendly, the reaction of fans and those producing the trash is extremely important to consider, perhaps even the most key. Fans are generally set in one way of disposing of their trash, so changes are not taken very easily. The common football fan does not always know what can and cannot be recycled or composted, let alone do the care. Without the support of the fans and staff of an athletics program, it is nearly impossible to make any significant changes toward zero-waste.

U Michigan:

Tips for behavioral changes:

- Recycling bins should ALWAYS be paired with a trashcan. Otherwise they will be used as trash cans.
- Target certain items with signage. Michigan's recycling bins tell fans that they can recycle plastic cups and bottles and aluminum cans. Even though they can technically accept more items, these are the most common ones, and messaging is kept simple.
- Have student staff standing around recycling bins near gates telling fans where to put their trash.
 - Michigan students were paid to help out (athletics covered the wages).
- Encourage fans to recycle right as the gates open.

Biggest challenge: Getting intoxicated students to put trash in the right bins.

UC Davis:

Tips for behavioral changes:

- Make sure to tell people that it is a zero waste stadium; signs were placed next to the stadium that said it was zero waste.

- Have security to check people for things that are not compostable before the game.
- UC Davis had Sodexo catering the food so everything that was sold was either compostable or recyclable, and they implemented little cost-efficient changes (i.e., instead of using little ketchup packets there would be a ketchup bottle for everybody to use).
- Major publicity helped contribute to campus-wide awareness.

Biggest challenge: Fans often sneak in non-compostable food items that prevent the stadium from being zero-waste.

Ohio State:

Tips for behavioral change:

- First of all, the football scene is very different at OSU than at UVa so fans pay more attention to changes in the football environment.
- Major publicity, including notifications in the paper and on the jumbotron.
- Because of this publicity, there is not much signage inside Ohio Stadium, but OSU believes that signage could definitely help.

Biggest challenge: OSU wonders how far-reaching a project like this will be.

Seattle Mariners:

Tips for behavioral change:

- Many on-field video board promotions and advertisements.

Biggest challenge: It is very difficult to keep fans from being oblivious to the initiatives. Most of this responsibility lies with the stadium employees who participate in the interception process after events to sort the waste stream before it is removed.

Game Day Recycling Report

Stand #	Stand Name	CO-MINGLE OK	CO-MINGLE BAD	FOOD OK	FOOD BAD	GARBAGE OK	GARBAGE BAD
110	High Cheese Pizza	0	0	1	0	0	1
116	Ivers and Rolling Roof	4	0	8	0	1	1
119	Holly Smoke	2	0	3	0	0	2
126	Rolling Roof	0	0	3	0	0	0
127	Shiskaberrys	1	0	1	0	1	0
127	The Natural	1	0	1	0	0	1
132	Rolling Roof	0	0	0	0	0	0
132	High Cheese Pizza, The Frozen Rope, torilla Junction	2	2	3	0	0	3
	International Wok	3	0	1	0	0	1
	The Grounds Crew Express	1	0	1	0	0	1
HOF	Power Ally	2	0	0	0	2	0
136	Fielders Choice Grill and Cheese Stake	5	0	5	0	1	0
141	High Cheese Pizza & Rolling Roof	2	0	2	0	0	2
149	Grounders	0	0	0	0	0	0
195	Rolling Roof	2	0	2	0	1	1
The Pen	Cantina	2	0	4	0	2	1
	APIZZA	3	0	2	0	2	0
	Lounge Bar	1	0	1	0	0	1
	La Creperie	1	0	1	0	2	1
	Hamburger + Fries	2	0	2	0	2	1
	The Rail Bar	0	0	0	0	0	0
		34	2	41	0	14	17
		Success Rate	94.4%	Success Rate	100.0%	Success Rate	45.2%

(image via "Join The Green Team!")

PRODUCT CONVERSION

University of Colorado at Boulder

Product Conversion Program Highlights

- Concession contract requirements
- 90+% recyclable or compostable packaging
 - Resulted in drastic reduction in paper contamination
- Portion control, bulk condiments

Challenge: Event organizers had to continuously "police" the packaging. Decisions regarding packaging were often made outside review/approval process. Often a stray package will appear at a game, causing the staff to then attain samples and move upstream to locate the source of the package, remove, or replace the packaging.

Solution: All packaging should be reviewed and approved. Criteria reviewed by university: cost, availability, minimal use of materials, recyclability, compostability, post-consumer content, fair-trade, ISO or similar certification

Identified Best Practices

Concessions: maintains constant conversation with concessions provider to attain desired result and give the concessions provider a lot of PR through promotional items like signs and banners, press releases, and reports that highlight their accomplishment

Ohio State University

University handles interactions with stadium vendor.

Product Conversion Program Highlights

- Uses all sorts of products, does not have many products specifically designed for compost—other than compostable nacho tray (unknown company), arranged through Sodexo.
- Their plastic products are recycling numbers 1-7, 6 is Styrofoam and they try to avoid that. Most of their plastics are #2 and #5

Challenge: A major challenge is finding recyclable or compostable alternatives to every product used in the stadium.

Solution: Perform inventory of all the products the stadium gives to fans and choose between a compostable alternative or a recyclable alternative. This alternative must be as effective, efficient, and economical as the current product. Ohio State works with the Ohio BioProducts Innovation Center to encourage Ohio companies to help solve this issue.

Wake Forest University

Goal: increase percentage of recyclable products offered to fans

Challenge: Framing the opportunity for increased sponsorships from companies

Solution: Most marketing groups that secure sponsorships understand the value to potential sponsors. The university can help frame the appeal to make it as closely aligned with corporate sponsors' existing priorities as possible.

General Best Practices: Concessionaries

Common Practices

- 78% of the 21 schools with successful programs said they got their stadium concessions from an external vendor
- 78% have attempted to work with their concessions provider to improve game day materials management
- All ensured that all containers, including souvenir cups fit into recycling containers
- Kept a good working relationship and having constant conversation with concessions
- 67% of schools said they had challenges with training concessions staff
- 22% said the lock-in effect of existing contract provides vendor with little incentive to change
- 39% were undecided about their satisfaction with the materials management efforts of the school's concessions provider while 33% were dissatisfied

Best Practices

- Start with small, simple changes (take on what your program can handle)
 - First switch to using recyclable cups
 - Flatten cardboard and put it into bins in the back of house
- Control and monitor what enters the waste stream
 - Monitor what materials are entering and produced by concessions
- Switch to using as many recyclable or compostable materials as possible
 - Encourage and prompt volunteers who staff concessions to sort the material and separate out the recyclable and compostable materials. Make sure staff is well trained.
- Continue relationship building with concessionaires
 - Working with concessionaires to improve waste management has been a constant

- struggle for game day programs. Be aware of this when planning for your program.
- Keep an open dialog; learn the concessionaire's constraints, concerns and issues.
- Listen and develop viable solutions.
 - Many respondents mentioned that a good working relationship and communication are key
 - Meeting with supervisors and concessions staff to emphasize that sorting materials is high on the priority list
 - In addition, cooperation by concessionaires can be accomplished by a change in contract language
 - Example: CU Boulder's Ed von Bleichert explains, "We were the first Division 1 stadium to go zero waste; the Governor gave us an award and we won the first game day challenge by a wide margin. We gave concessions lots of PR in the beginning, and we gave concessions all the credit. Now they are on the team, but problems are still abounding due to staff turnover and indifference."
 - Change contract language to require concessionaires to use compostable or recyclable materials. This might be difficult to accomplish in the short term, but should be a long term goal.
- Relationship with Athletics department
 - It is difficult to ask for further changes in concessions' practices without a relationship with the Athletics department.
 - Athletics will have to embrace zero waste ideals and create mandates that require concessionaires to comply with certain material management guidelines.
- Provide cardboard only dumpsters for boxes
 - This is useful because cardboard is a commonly used and disposed of material for concessionaires.
- Provide composting and recycling bins for back of house operations.
 - This is useful because it provides a sustainable outlet for uneaten food, food scraps, and recyclable food packaging that is typically thrown away.

Seattle Mariners

Uses a variety of compostable products and suppliers in their facility.

Product Conversion Program Highlights:

- Eco Products – Supplies the majority of Seattle's items such as biodegradable plastic cups, lids, straws, utensils, clamshell and deli containers.
- Southern Champion Tray – Supplies Seattle's custom printed "Safeco Field" logo food boats.
- Superior Quality Products - supply stock biodegradable food trays.
- Solo cup – Has a line of biodegradable products called "Bare". It produces compostable plates, bowls, and cups. Seattle also gets a paper food bucket for popcorn from them that is compostable.
- Fabri-Kal - Supplies Seattle's custom "Safeco
- Field" printed compostable plastic beer cups.
- Eco Safe – Supplies Seattle's compostable can liners.



(image via "Join The Green Team!")

RECEPTACLE DISTRIBUTION

Consensus

-Group compost/recycling receptacles in pairs. Place in high-traffic areas as one would for any waste receptacle location. Color coordination – receptacles need not be an eyesore.

One major area of consensus regarding receptacles is that it is very important to group compost and recycling receptacles in pairs both to maximize the amount of material that reaches them and to emphasize the divisions between the two. Corey Hawkey, the contact at Ohio State, pointed out that these receptacles need not be an eye sore – they should be color coordinated to match school colors and thereby enhance aesthetic appeal (as shown in title page picture). All agree that receptacles should be located in high-traffic areas to maximize collection amounts. As Penn State's representatives said regarding recycling, "...be located where customers are and make recycling easy" (Toolkit).

Seattle Mariners/Colorado University

-If eliminating garbage collection altogether in favor of compost and recycling is not immediately feasible, a garbage component may be kept.

Another possible option in this area is to maximize the compost component while maintaining a small, inconspicuous traditional garbage component, as well as recycling receptacles. This is the strategy pursued by the Seattle Mariners, and they have achieved a nearly 80% landfill diversion rate over the course of 81 home games per year and countless more special events. Colorado University also endorses this as an option that could be employed to meet specific needs, for example, if a program is just beginning

or if it isn't immediately feasible to eliminate garbage collection. The approach selected by UVA will likely depend on the results of waste audits, as it should be tailored to Scott Stadium's unique circumstances.

-Waste audits are extremely important. A trial run for UVA's zero-waste program is recommended.

All of the programs researched outside of Ohio State, where a simple eyeball test was used, conducted a formal waste audit to determine the amount of waste stream to be expected and the number of receptacles necessary to handle it. The Seattle Mariners organization is very much in favor of a "trial run" of the program at a smaller setting such as the soccer or baseball stadiums. Scott believes that this could be extremely helpful in the waste audit process as well as in showing us and the other stakeholders what would be necessary to carry out the program on a larger scale. Both organizations stressed the importance of a long-term approach towards the project and keeping it as simple as possible. The project will have to be able to grow with the process and adapt to inevitable setbacks.

MISCELLANEOUS

-Interception teams will likely necessary.

An area of agreement among all contact organizations except for Michigan is that a program to sort the waste streams before they are sent to their final destinations after games is vital to success. Invariably, mistakes will happen wherein fans will place the wrong containers in the wrong locations, though these mistakes can be reduced by manning receptacle locations. Compost and recycling facilities cannot accept deliveries of waste that are overly contaminated, so it is important to ensure an acceptable waste stream to promote long-term viability of the operation. Both organizations also agreed on the importance of a long-term, flexible approach in this area. Labeling of receptacles and signage should be able to be changed easily to respond to varying conditions. Products and emphasis may change rapidly, so it is important to be prepared for these situations.

-A dedicated and well-equipped staff allows for in-depth performance analysis.

The Seattle Mariners organization is by far the most numbers-oriented organization in terms of waste audits and charting of results. Seattle has conducted significant waste audits and quantified the results to determine their strategy. After each game, the Mariners organization charts their results on landfill diversion around the ballpark and looks for ways to improve. UC Davis conducts a compost audit after each game, but their small stadium size is what ultimately makes this possible. While other organizations do chart their diversion rates, the analysis pales in comparison to the Seattle Mariners, which has far more employees who are paid to do this on a nightly basis. To reach such an analytical level would require many employees fully devoted to making the program a success.

-Issues with compostable liners.

Ohio State and UC Davis have encountered an issue with compostable liners inside their compost receptacles, as they have found them to be ineffective and susceptible to breaking, as well as too small. UC Davis has moved to carts for compost. Another possible solution is one that the Seattle Mariners utilize, which is only using compostable bags for extra food directly from concessions while using clear plastic bags as liners in the receptacles. This means all contents are emptied during the interception and sorting process and allows the interception teams to see inside the bags to find out which are too contaminated to be sorted. Also, Corey Hawkey mentioned the importance of a quality training program for/supervision of concessions

employees because of the unique circumstances of college stadiums. As most concessions workers at college games are volunteers and change from week to week, they often are not familiar with and do not think about the important components of a zero-waste program. It will be important to oversee the operations of the sub-vendors to ensure the program's success.

-Create a committee of stakeholders and affect change from the top down.

One that Ohio State proposed was to set up a committee of the major stakeholders, including facilities management, administration, athletics, Aramark, student groups, etc. to get everyone on the same page and keep them there. A high level of commitment from everyone involved is necessary to obtain success in this venture, and this could help tremendously if done correctly. Another regarded project conversion: Corey believes that the project should work from the top (Aramark) down (to sub-vendors) in changing containers to compostable and recyclable in order to ensure continuity among the sub-vendors. One seeks to avoid a situation in which some plastic containers used by some sub-vendors are actually compostable while all other plastics are recyclable, as has actually occurred in some instances at Colorado.

SOURCES

Corey Hawkey – Program Coordinator for Energy and Sustainability at The Ohio State University

Scott Jenkins – VP of Ballpark Operations at Safeco Field, Home of the Seattle Mariners

Tracy Artley – Recycling Coordinator at The University of Michigan

Michelle La – Program Coordinator for Waste Reduction & Recycling Program at the University of California-Davis

“Starting From Scratch: Greening Your Game Day” – The Collegiate Football Sustainable Materials Management Toolkit.

“Join the Green Team!” EPA Webinar September 29, 2011. Scott Jenkins.