# **CSA Worksite Wellness**

Taste the Local Difference

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# **Executive Summary**

# Introduction

Though funding from the Michigan Health Endowment Fund as part of Shape Up North and Munson Medical Center's Project: Building a Child-Focused Health and Wellness Culture in Northern Michigan, Taste the Local Difference offered a novel family level intervention. Our proposal stated:

"Community Supported Agriculture (CSA) is a powerful way to increase consumption of fresh healthy fruits and vegetables, while supporting the local food system... Insurance companies have begun to see CSA subscriptions as a form of preventative medicine and some have even offered reimbursement programs for a portion of the overall cost. No insurance companies in Michigan are currently offering this type of incentive, but the Fair Share CSA program in Wisconsin has had success in engaging insurance companies and large employers in this type of activity.

A number of insurance companies in Michigan have begun to show interest, but they are looking for data and proof of concept to consider a similar incentive. This project would result in clear evidence and reporting to encourage fresh healthy food as an important component of wellness programs. This information would then be shared with insurance companies statewide in an effort to build momentum and develop privately funded CSA incentive programs throughout Michigan."

Our goal was to target the workplace and employees with children through Community Supported Agriculture (CSA) as a layered intervention for child- health improvement in our region. CSA is a model "in which a farm provides a specified amount of produce or farm products to a customer on a weekly, bi-weekly or monthly schedule during the growing season. (Michigan State University Extension, 2015)" <u>Taste the Local Difference</u> (TLD) identified and paired five employers with five local farms to allow employees the option to sign up for a CSA. Boxes were then delivered every week to the workplaces of participants.

Our overarching inquiry concerned whether or not employers and insurance companies should treat worksite CSAs as a wellness benefit. We assessed the impact of worksite CSAs on employee and child health as well as described employee attitudes toward health insurance and wellness benefits. Surveys were the primary measurement tool used. Data on fruit and vegetable intake, perceived health, and weight status were chosen as health indicators and used to evaluate differences between participants and non-participants.

# Methods

## Logic Model

We hypothesize that worksite CSAs can help reduce rates of childhood overweight and obesity and improve employee health. See Figure 1. for Logic Model.

By offering worksite CSAs as a wellness benefit, fruit and vegetable intake among participants and their families could increase. Because time, convenience, and taste impact healthy eating and shopping, dropping off CSA shares at work could help reduce barriers to healthy behaviors. By having local produce delivered to work, employees save time and prevent unhealthy impulse buys from replacing produce in grocery carts. The produce from the CSA then makes its way into the home. Since the availability of healthy food in the home is associated with child intake, increases in produce should lead to increases in child access and consumption (Ong et al, 2017). Furthermore, local produce is fresh and appears to taste better (Bratanova et al, 2015). Because taste influences food choices and intake, families may be more likely to consume fresh local produce (Drewnowski, 1997). If fruit and vegetable intake is successfully increased, child nutrition status and employee health could improve, and overweight and obesity could be reduced (Ledoux et al, 2011).

Figure 1. Logic Model

Inputs	Outputs	Short Term outcomes	Medium Term Outcomes	Long Term Outcomes	Ultimate Impact
Funding from MHEF	Farm and employer connections made by TLD	Increased access to CSAs for employees with varying incomes	Improved attitudes toward local food and fresh produce	Families choose and value purchasing local produce	Reduced rates of obesity/overw eight in children in Northwest Michigan
Local Farms	Employees sign up for CSAs through TLD	Increased access to CSAs for employees with children	Improved attitudes toward healthy eating	Increased consumption of fruits and vegetables long term	Improved employee health
Worksites	\$100 discount	Increased local produce	Increased knowledge of	Increased number of	

	offered for those with children under age 18 at home	at worksites	how to prepare fresh produce	meals prepared at home	
TLD Staff	Payroll Deduction offered as an alternative to full payment upfront	Increased local produce at homes		Children's nutrition status improved	
Employee participants	Farms drop off boxes weekly to worksites	Increased consumption of local produce among adults and children			
	Recipes provided in email newsletters				
	Educational Materials developed and distributed to sites as requested				

External Factors	Assumptions
Weather and crop yields	Employees bring produce home
Cultural and taste preferences of farms and families	Families have the tools and time to prepare fresh produce and meals
SES, race, sex, and gender differences	Children have overweight/obesity due to a lack of fresh produce
Other health initiatives implemented at the worksites	Families can afford fresh local produce without the price discount
	Families consume the produce and do not

throw it out
tillow it out

### **Timeline**

Our population included employees from <u>Bay Motor Products</u>, <u>Munson Cadillac</u>, <u>TentCraft</u>, <u>Alfie</u> Logo Gear, and Short's Brewing Company. In March 2017, 147 employees filled out the pre-survey. In April 2017, 128 employees signed up to participate in the worksite CSA program. Because employees signed up to participate after filling out the pre-survey, participation status was unknown in the pre-survey. To reduce the price barrier of paying in full at the start of the season, all had the option to sign up for payroll deduction (Conner, 2003). With the exception of those at Munson Cadillac, employees with children at home under the age of 18 were eligible for a \$100 discount. Research shows decreased CSA participation among households with young children as well as an ability for financial incentives to improve participation (Kolodinsky & Pelch, 1997). By including a price incentive for those with children, we aimed to increase the number of employees with children participating. Overall, 30 employees received the child price incentive. Every week from June 2017 to October 2017, farms delivered the CSA boxes to each worksite. During this time, employers had the option to provide nutrition education to their employees through the Registered Dietitian at TLD, but only Bay Motor and Tent Craft chose to do so. All worksites received a passive educational intervention through the distribution of an electronic TLD Wellness Newsletter (distributed July, August, September & October). In November 2017, 148 employees filled out the post-survey. Data analysis began in May 2018.

# Analysis

Data analysis was done in Microsoft Excel. Fruit intake, vegetable intake, perceived health, and weight status were the health indicators. Frequency comparisons were done by calculating the percent of respondents selecting each answer in a question. T-tests, chi-square tests, and z-tests were used to determine statistical significance (α=0.05). Two sample t-tests were performed to compare mean differences in produce intake. Even though fruit and vegetable intake was measured in half cup intervals, it was treated as a continuous variable in the analysis to obtain averages. Perceived health was coded as a continuous variable to compare mean health scores via a two sample t-test [Perceived Health: Fair=1, Good=2, Very good=3, Excellent=4]. Because using a t-test for scaled ordinal data can be problematic, a chi-square test was also done to test the association between participation status and perceived health as a categorical variable (Sullivan & Artino, 2013). Z- tests were conducted to see if the proportion of participants and non-participants within each perceived health category were significantly different. Likewise, the percent of participants and non-participants in each weight status category were compared via z-tests.

### **Data Limitations**

Due to survey design and software limitations, the process of data manipulation and cleaning was extensive which increased opportunities for human error. For example, most employees were sent a Pre-Survey and a Post-Survey online via <a href="Survey Monkey">Survey Monkey</a>; however, Bay Motor chose to have their employees fill out a paper version. TLD staff uploaded the paper responses from Bay Motor into Survey Monkey. Nonetheless, all data had to be exported and combined in an Excel document. During this process, ten responses were thrown out due to duplicate answers on questions which requested only one. Because the post-surveys asked about vegetable intake first while the pre-surveys given to Tent Craft, Alfie, and Munson Cadillac asked about fruit intake first, responses had to be reordered.

Furthermore, our analysis was limited by the timing and design of the survey. Some questions were not asked both pre and post, which means comparisons of those data points were not possible. Questions about previous CSA participation, insurance satisfaction, importance of wellness benefits, education level, and zip code of residence were asked only in the pre-survey. Questions about participation in this CSA program, use of the child price incentive, and child fruit and vegetable intake were asked only in the post-survey. Most important, participation status was unknown in the pre-survey, so comparisons between participants and non-participants could not be made for those questions. Plus, employees who filled out the surveys were not assigned any specific identification numbers or labels. This means we could not look at changes in individuals pre and post survey. The surveys were also administered in different seasons, Spring and Fall. Since there appear to be seasonal variations in fruit and vegetable intake patterns, time of year could confound the relationship between CSA participation and produce intake (Locke et al, 2009). Lastly, our health indicators were produce intake, perceived health, and weight status. Because behavior change takes time and perceived health is predictive of chronic disease, it is likely that the five month time frame of our program was too short to see real changes in health. Due to these limitations, we chose not to compare pre-survey and post-survey data. Instead, we compared participants and non-participants by using only the post-survey data.

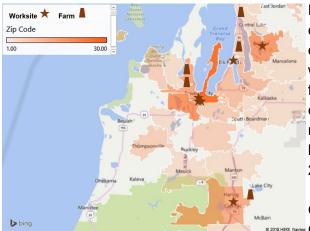
# Findings & Discussion

## **Demographics**

Overall, it appears our population was highly educated as 66% had at least a 2-year associate's degree. Education level could impact our results as it is associated with store choice, which means our population could already be more likely to shop local. Higher education is also associated with healthier behaviors as well as increased nutritional status of children. In other

words, it's likely that our population was practicing healthy behaviors and cared about health prior to the program.

Figure 2.



Employees were also asked about their zip code. The zip codes with the highest density of employees were often the same zip codes the worksites were located in. Plus, worksites and farms were either in the same or adjacent zip codes. The close proximity of employee residence, worksite, and CSA farm emphasizes local and community as promised. See Figure 2.

Only 16% of employees had participated in a CSA prior to the start of this program while 59%

of employees surveyed participated in the CSA offered through work via this program. This jump in participation suggests there is interest in CSA, but there may be barriers to participation when not provided through work. After the worksite CSA program ended, 57% of employees surveyed said they would participate the next year. Again, this high retention rate illustrates support for worksite CSAs.

Still, we did not ask questions about socioeconomic status (SES), race, sex, or gender. SES data could help explain differences in participation or health since those with lower incomes have more barriers to healthy lifestyles and are less likely to participate in CSAs. Research has also shown racial differences in health due in part to education and income differences (Williams et al, 1997). Sex and gender differences in health have also been studied (Regitz-Zagrosek, 2012). Without this individual level data, we cannot understand nor control for any impact of these characteristics.

## Impact on Health

#### Produce Intake

Fruit and vegetable intake was measured in cups and self-reported by employees. Participants had a higher average intake of fruit compared to non-participants; however, this difference was not statistically significant (p=0.34). Participants also had a higher average intake of vegetables

Figure 3.



than non-participants, but this difference was also not significant (p=0.18). Still, both participants and non-participants consumed significantly less fruit than the two cup daily recommendation set by the United States Department of Agriculture (USDA) (p<0.001). They also consumed significantly less vegetables than the two and a half cup USDA recommendation (p<0.001).

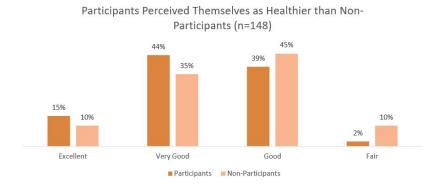
Nationally, Americans are eating less than the recommended intake of fruits and vegetables, and this increases their risk for chronic disease (Boeing et al, 2012). Even within our program, pre-survey and post-survey data showed that those who consumed more fruits and vegetables also perceived themselves as significantly healthier (p<0.001). While the differences in intake that we observed were not significant, they do suggest CSAs may increase intake; therefore, they may be a useful tool in reducing chronic disease rates.

#### Perceived Health

Perceived Health was self reported and required selecting one of the scaled options: Fair Health, Good Health, Very Good Health, Excellent Health. Overall, participants did perceive themselves as healthier than non-participants. The mean perceived health scores between groups were significantly different (p=0.045). However, participation status was not significantly associated with perceived health (p=0.13). Still, a significantly larger percent of non-participants perceived their health as just "Fair" (p=0.032).

While self reported data can be bias, perceived health is a good predictor of chronic disease status (Goldstein et al, 1984). Because chronic diseases are top causes of death, high healthcare costs, and lost productivity, it was more important for us to measure chronic disease than acute disease (MDHHS, 2014). If CSA participants really do have better perceived health and less chronic diseases, it again suggests CSAs could be a tool in reducing chronic disease rates.

#### Figure 4.



### Weight Status

Weight status was determined by asking employees if they had lost weight, gained weight, or stayed the same weight since they took the pre-survey. More non-participants gained weight over the course of the program; however, this difference was not significant (p=0.46). This could be because self-reported weight is subject to reporting and recall bias. For instance, social desirability bias could have caused employees to deny that they gained weight. Similarly, those who were actively trying to lose, gain, or maintain weight may have recalled their weight prior to the program better than those who were not paying attention to their weight. Regardless, any difference in weight gain suggests further research is necessary. With almost 40% of adults affected by obesity in 2016, it is important to discover whether CSAs can be part of the solution to the obesity epidemic (Hales et al, 2017). Still, even moderate weight gain increases the risk for chronic diseases and death among working age adults, 30-64 years old (US Department of Health and Human Services, 2001). Hence, if CSAs play a role in preventing weight gain, they also can help prevent chronic disease.

Figure 5.



### Child Fruit and Vegetable Intake

Our aim to collect child fruit and vegetable intake data was unsuccessful for two important reasons. First, only the post-survey asked about child intake, which means we had no pre-survey data to make comparisons. Plus, the question which asked about child intake in the post-survey was only available to those who had answered in a previous question that they received the \$100 child price incentive discount. In other words, only a few people were able to share their child intake data; hence, we could not compare the intake of participant's children to non-participant's children. Second, participants appeared to be unaware if they received the incentive. 30 people received the incentive based on our records; yet, only 7 people said they received it. Even so, Munson Cadillac did not allow their employees to receive the child price incentive, yet employees reported receiving the incentive. In the end, while we have child intake data on the seven participants who reported it, it is not reliable enough to do any analysis on. See Appendix for Child Intake Charts.

Fortunately, while we do not have good data on child intake, we do have the data from their parents. Parent and child diet quality and energy intake are strongly related; thus, patterns and relationships seen with adult intake and CSAs are likely similar among children (Robson et al, 2016). In other words, if adults consume more produce when participating in a CSA, their children are likely to also consume more. Furthermore, it appears that children's "food preferences and their diets reflect the foods that are available and accessible to them" (Savage et al, 2007). Hence, we can assume that more fruits and vegetables in the home will result in more fruits and vegetables in children's diets.

# Thoughts on Insurance and Wellness Benefits

While employees don't feel completely satisfied with their insurance plans, it seems they have a desire for more wellness benefits. Employees ranked their satisfaction with current health insurance as well as the importance of wellness benefits on a scale of 1-10 with 10 being highest satisfaction/most important. The average rating for satisfaction with health insurance was 6.23, and the average level of importance of wellness benefits was 6.86. Meanwhile, 83% said refunds or subsidies for preventative health measures would improve their satisfaction level. More so, employees cited high cost, lack of incentives, and lack of use as reasons they were unhappy with their insurance. While there's only so much companies can do to lower overall insurance costs, preventative care incentives are cost effective ways to make employees feel like they're getting more out of their insurance plans and the money they put into them. Nonetheless, there seemed to be a pattern of people believing that insurance was for those with health problems. If healthy employees are not interacting with their insurance plans, it suggests that they are poorly educated on the importance of preventative care, or there may be a lack of incentives or wellness benefits. Either way worksite CSAs could be one wellness benefit used to improve satisfaction with insurance.

### Limitations

Due to the short time frame and rural community setting, we were not likely to see significant change during this program. Because the program was short term, real changes in chronic health or behavior did not have adequate time to occur. We also do not have longitudinal data to know if the changes we did observe persisted. Since participants and non-participants were compared using just the post-survey data, it is a cross sectional comparison and cannot provide any information about causation. Plus, the program took place in rural communities, and small population sizes in rural communities often lead to a lack of statistical significance (Barnidge et al, 2013).

Furthermore, there is selection, reporting, and measurement bias. Because our sample is not random, participants self-selected themselves into the program. This implies they are already innately different from non-participants. For instance, they could already be more health conscious, and that could confound the relationship between CSAs and health. As discussed prior, all data is self reported, we do not have biometric data, and we did not triangulate our data. Therefore, social desirability bias or recall bias could impact the information we collected on our health indicators. Nonetheless, signs of measurement bias popped up throughout the data analyzation process. It appears some questions and terms were not explained or defined clearly which left room for misinterpretation.

Finally, we did not control for confounders and external factors. Bay Motor and Tent Craft had other wellness initiatives in place because they were participating in *Building Healthy Community* initiatives. They also choose to take advantage of the optional nutrition education provided by TLD's Registered Dietitian. As for individuals, characteristics besides CSA participation could create spurious or hide true relationships, yet we did not collect information on such potential confounders. With limited data on potential confounders and external factors, we could not create more complex statistical models to better explain the impact of CSAs on health. Similarly, while we did not ask questions about socioeconomic status or race, we can assume our results are not generalizable to other communities. Using Census data for Wexford, Antrim, and Grand Traverse County, we see two of the three counties have median incomes below the national level. Also, they are 95.3% to 96.7% white while the national average is 76.6% white (United States Census Bureau, 2017). These statistics alone suggest our population is homogenous and not generalizable.

# Recommendations

The data collected in this small program is not sufficient to prove that CSAs improve health or health behaviors among employees or their children. Nonetheless, the results obtained do suggest that CSAs improve health.

We recommend performing a scientific study or evaluation that is rigorous, longitudinal, and controls for confounders/external factors. A future program or study should use validated surveys and questionnaires, collect biometric data, and identify/label employees pre and post survey. Validated surveys and questionnaires would help ensure that the effect of a CSA on health is being measured while controlling for confounders and planning for external factors. Collecting biometric data, such as weight, BMI, blood pressure, or blood lipids, would reduce reporting bias and result in a more accurate understanding of health status. Finally, identifying or labelling respondents both pre and post survey means individual changes can be analyzed and compared. It also allows for stratification to determine if confounders or interactions are present. TLD has consulted with Dr. Jean Kerver, PhD, MSc, RD, Assistant Professor of Epidemiology and Biostatistics, College of Human Medicine, Michigan State University about our project, next step recommendations and future research considerations which it intends to pursue. In addition, TLD will continue to partner with an established & state-wide CSA working grouping hosted by Michigan State University and Michigan Food & Farming systems (MIFFS).

#### Conclusion

Even though our evaluation of the CSA worksite wellness program did not prove our hypothesis, it did build on existing evidence. The differences between participants and non-participants, while not always statistically significant, suggest that those who partake in CSAs may be healthier. After all, participants ate more fruits and vegetables on average; additionally, a smaller percent reported gaining weight and perceiving their health as just "Fair."

Meanwhile, research has illustrated the increase in chronic disease among US adults and the negative impact that has on healthcare costs and workplace productivity. It has identified a childhood obesity epidemic as well as the relationship child health has with parental diet and home food environment. Long standing evidence shows a diet high in fruits and vegetables can lead to lower rates of chronic disease and obesity. With the size and scope of this evaluation, we were not able to collect enough evidence to prove that workplace CSAs can improve employee health and reduce childhood overweight and obesity. That said, as illustrated in this report, the logic model created builds off existing research while the data we collected shows some difference between participants and non-participants. Future research and program evaluation could determine if there is a real relationship. Because Taste the Local Difference is intrigued by the data collected in this program, they are exploring ways to conduct a more rigorous study or evaluation in the near future.

### References

Barnidge, E. K., Radvanyi, C., Duggan, K., Motton, F., Wiggs, I., Baker, E. A. and Brownson, R. C. (2013), Understanding and Addressing Barriers to Implementation of Environmental and Policy Interventions to Support Physical Activity and Healthy Eating

- in Rural Communities. *The Journal of Rural Health*, 29: 97-105. doi:10.1111/j.1748-0361.2012.00431.x
- Boeing, H., Bechthold, A., Bub, A., Ellinger, S., Haller, D., Kroke, A., ... Watzl, B. (2012). Critical review: vegetables and fruit in the prevention of chronic diseases. *European Journal of Nutrition*, 51(6), 637–663. doi: 10.1007/s00394-012-0380-y
- Bratanova, B., Vauclair, C., Kervyn, N., Schumann, S., Wood, R., & Kleina, O. (2015). Savouring morality. Moral satisfaction renders food of ethical origin subjectively tastier. *Appetite*, 91, 137-149. doi: 10.1016/j.appet.2015.04.006
- Conner, D. S. (2003). Community Supported Agriculture Pricing and Promotion Strategies: Lessons from Two Ithaca, NY Area Farms. *Department of Applied Economics and Management College of Agriculture and Life Sciences Cornell University*. Retrieved from: https://ageconsearch.umn.edu/bitstream/122132/2/Cornell\_AEM\_eb0307.pdf
- Drewnowski, A. (1997). Taste preferences and food intake. *Annual Review of Nutrition*, 17, 237-53. doi: 10.1146/annurev.nutr.17.1.237
- Goldstein, M. S., Siegel, J. M., & Boyer, R. (1984). Predicting changes in perceived health status. *American Journal of Public Health*, 74(6), 611–614.
- Hales, C. M., Carroll, M. D., Fryar, C. D., & Ogden, C. L. (2017). Prevalence of Obesity Among Adults and Youth: United States, 2015–2016. *CDC*. Retrieved from: https://www.cdc.gov/nchs/data/databriefs/db288.pdf
- Kolodinsky, J. M. & Pelch, L. (1997). Factors Influencing the Decision to Join a Community Supported Agriculture (CSA) Farm, *Journal of Sustainable Agriculture*, 10(2-3), 129-141. doi: 10.1300/J064v10n02 11
- Ledoux, T. A., Hingle, M. D. and Baranowski, T. (2011). Relationship of fruit and vegetable intake with adiposity: a systematic review. *Obesity Reviews*, 12, e143-e150. doi:10.1111/j.1467-789X.2010.00786.x
- Locke, E., Coronado, G. D., Thompson, B., & Kuniyuki, A. (2009). Seasonal Variation in Fruit and Vegetable Consumption in a Rural Agricultural Community. Journal of the American Dietetic Association, 109(1), 45–51. doi: 10.1016/j.jada.2008.10.007
- MDHHS. (2014, July 30). Preventing Chronic Disease and Promoting Health in Michigan: Why We Target Chronic Diseases and Injuries. Retrieved July 23, 2018, from https://www.michigan.gov/mdhhs/0,5885,7-339-73970 2944 67827-325836--,00.html

- Michigan State University Extension. (2015, March 19). The basics of community supported agriculture. Retrieved July 23, 2018, from http://msue.anr.msu.edu/news/the\_basics\_of\_community\_supported\_agriculture
- Ong, J. X., Ullah, S., Magarey, A., Miller, J., & Leslie, E. (2017). Relationship between the home environment and fruit and vegetable consumption in children aged 6-12 years: A systematic review. *Public Health Nutrition*, 20(3), 464-480. doi: 10.1017/S1368980016002883
- Regitz-Zagrosek, V. (2012). Sex and gender differences in health: Science & Society Series on Sex and Science. *EMBO Reports*, 13(7), 596–603. doi: 10.1038/embor.2012.87
- Robson, S. M., Couch, S. C., Peugh, J. L., Glanz, K., Zhou, C., Sallis, J. F., & Saelens, B. E. (2016). Parent Diet Quality and Energy Intake Are Related to Child Diet Quality and Energy Intake. *Journal of the Academy of Nutrition and Dietetics*, 116(6), 984-990. doi: 10.1016/j.jand.2016.02.011
- Savage, J. S., Fisher, J. O., & Birch, L. L. (2007). Parental Influence on Eating Behavior: Conception to Adolescence. *The Journal of Law, Medicine & Ethics : A Journal of the American Society of Law, Medicine & Ethics*, 35(1), 22–34. http://doi.org/10.1111/j.1748-720X.2007.00111.x
- Sullivan, G. M., & Artino, A. R. (2013). Analyzing and Interpreting Data From Likert-Type Scales. *Journal of Graduate Medical Education*, 5(4), 541–542. http://doi.org/10.4300/JGME-5-4-18
- Taste the Local Difference. (2018). Retrieved July 30, 2018, from www.localdifference.org
- United States Census Bureau. (2017, July 1). U.S. Census Bureau QuickFacts: Wexford County, Michigan; Antrim County, Michigan; Grand Traverse County, Michigan; UNITED STATES. Retrieved July 24, 2018, from https://www.census.gov/quickfacts/fact/table/wexfordcountymichigan,antrimcountymichigan,grandtraversecountymichigan,US/PST045217
- U.S. Department of Health and Human Services. (2001). The Surgeon General's call to action to prevent and decrease overweight and obesity. [Rockville, MD]: U.S. Department of Health and Human Services, Public Health Service, Office of the Surgeon General. Retrieved from: https://www.surgeongeneral.gov/library/
- Williams, D. R., Yu, Y., Jackson, J. S., & Anderson, N. B. (1997). Racial Differences in Physical and Mental Health: Socio-economic Status, Stress and Discrimination. *Journal of Health Psychology*, 2(3), 335 351. doi: 10.1177/135910539700200305

# **Appendix**

#### **Research Questions**

- Research Question:
  - Should worksite CSAs be treated as an employee wellness benefit?
- Objectives:
  - Assess the impact of worksite CSAs on employee produce intake and health
  - Describe employee attitudes toward health insurance and wellness benefits
- Partial Research Questions:
  - Is there a difference in perception of health, produce intake, and weight status between pre and post? Are these differences significant?
  - Is there a difference in perception of health, produce intake, and weight status between participants and non-participants? Are these differences significant?
  - Is reported intake significantly different from fruit and vegetable recommendations?
  - Does perceived health increase as produce intake increases?
  - How satisfied are employees with their health insurance?
  - How important are wellness programs and subsidies?

#### **CSA Definition**

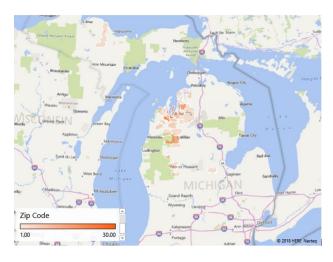
"Community Supported Agriculture (CSA) is a unique model in which a farm provides a specified amount of produce or farm products to a customer on a weekly, bi-weekly or monthly schedule during the growing season. Transactions for these 'shares' of produce are typically made prior to the growing season, so the customers absorb some of the risk involved in vegetable farming by providing the money 'up front' ... CSA customers have the opportunity to enjoy a season of the freshest, local produce available in their area. They have the opportunity to develop a relationship with a local farmer and learn about the labor that goes into producing a season's worth of fresh fruit and vegetables. Most importantly, consumers learn where their food comes from and have a direct relationship with a community of eaters." - MSU-extension

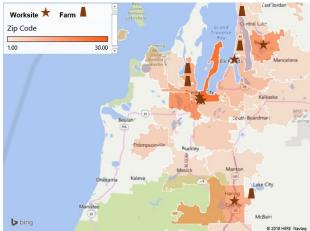
#### **Worksite-Farm Pairings & Location**

Worksite	Farm
Bay Motor Products	Second Spring Farm
Short's Brewing Company	Undertoe Farm & Providence Farm
TentCraft	Loma Farm
Alfie	Second Spring Farm

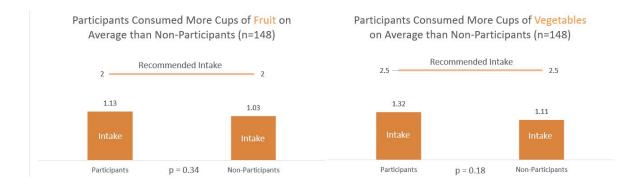
#### Munson Cadillac

### Third Day Farm

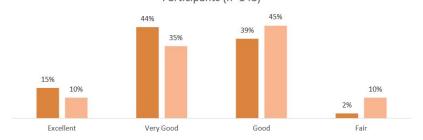




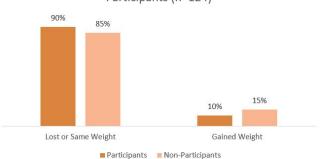
#### **Health Indicator Charts**



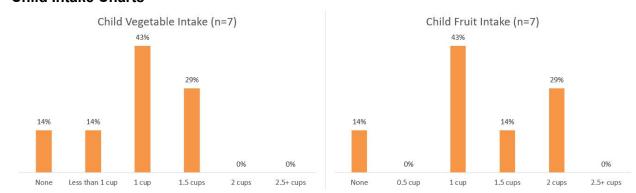
#### Participants Perceived Themselves as Healthier than Non-Participants (n=148)



More Non-Participants Gained Weight than Participants (n=124)



#### **Child Intake Charts**



#### **Open-ended responses from CSA participants:**

#### Feelings about CSA & Health

I loved the variety and exposure to new vegetables. I looked forward to the weekly emails and (even though I didn't always use them) the recipe suggestions were awesome to have!

I know healthy eating habits. I just need to stop liking pizza and tacos (hahaha). Thank you for considering this benefit for us. I know it will help me in my goal to live a healthier lifestyle.

We eat a lot of garbage food because we only get 10 minute breaks and the vending machines don't carry anything nutritional.

Promoting wellness and health eating habits will save a lot of money down the road. Everyone just needs to do the arithmetic

Easy access to farm fresh food would be awesome! I have trouble making it to farmers markets due to lack of free time on those days.

A CSA program that either delivers food to work or is located in the town in which I am residing (so I don't need to ride to another town to visit a farmer's market) is the ideal sort of solution I am looking for.

Thank you for being a part of the community and opening up conversations to these topics. Proud to be a part of a community that cares about where food comes from and supporting local farmers. Keep kicking ass!

#### Insurance

Insurance is confusing and it never really feels like a good deal even when you are healthy.

I haven't had a whole lot of interaction with my health insurance- knock on wood! But the few times that I have had to use it, it has worked great. I think that having Priority Health in this area makes it very easy to use.

I'm very healthy, so I don't have anything to complain about with the features or benefits.

I know that I am better off than many in our country, particularly in the uncertain times, but my out of pocket costs are pretty substantial.

Little options put in place to reduce out of pocket spend or protect employees from rate increases. I do not mean Munson just footing the bill, but making real plan design changes that can impact both outcomes and total spend.

#### **Survey Questions**

Employees were all asked the following questions; however, some were asked in a different order or given additional questions. Exact copies of surveys are available upon request.

#### **Pre-Survey**

- 1. Where do you usually buy food?
  - Farmer's Market (examples: Sara Hardy Downtown Market, The Village Farmers Market, Gallagher Centennial Farm Market Store)
  - b. Locally-owned grocery store (Oleson's, Tom's, Honor Family Market, Anderson's IGA, Oryana Community CoOp)
  - c. National Supermarket Chain (Walmart, Shop n' Save, Meijer's, Save a lot, Aldi) A mix of all the above
  - d. Both locally owned and national stores but NOT Farmer's Markets
  - e. Other (please specify)
- 2. Choose the statement that best matches your top concern when buying food. (Pick one)
  - a. I buy whatever is most convenient
  - b. I buy foods that are easy to prepare
  - c. I buy foods with the lowest cost
  - d. I buy foods based on where the food is grown
  - e. I buy foods based on how the food is grown (organic, natural, grass fed)
  - f. I buy whatever looks good based on my taste preferences
  - g. Other (please specify)
- 3. Would you say that in general your health is:
  - a. Excellent
  - b. Very good
  - c. Good
  - d. Fair
- 4. Rate your agreement with the following statements by checking the box that matches your agreement.
  - a. Healthy Eating is important to me. Strongly Agree
  - b. Healthy Eating is important to me. Agree
  - c. Healthy Eating is important to me. Neither Agree nor disagree
  - d. Healthy Eating is important to me. Disagree
  - e. Healthy Eating is important to me. Strongly Disagree
  - f. Healthy Eating is important to me. Don't know
- 5. Rate your agreement with the following statements by checking the box that matches your agreement.
  - a. I eat whatever tastes good without much thought. Strongly Agree
  - b. I eat whatever tastes good without much thought. Agree

- c. I eat whatever tastes good without much thought. Neither Agree nor disagree
- d. I eat whatever tastes good without much thought. Disagree
- e. I eat whatever tastes good without much thought. Strongly Disagree
- f. I eat whatever tastes good without much thought. Don't know
- 6. Rate your agreement with the following statements by checking the box that matches your agreement.
  - a. Having access to locally grown food is important to me. Strongly Agree
  - b. Having access to locally grown food is important to me. Agree
  - c. Having access to locally grown food is important to me. Neither Agree nor disagree
  - d. Having access to locally grown food is important to me. Disagree
  - e. Having access to locally grown food is important to me. Strongly Disagree
  - f. Having access to locally grown food is important to me. Don't know
- 7. Rate your agreement with the following statements by checking the box that matches your agreement.
  - a. My doctor asked me to change my eating habits to improve my health. Strongly Agree
  - b. My doctor asked me to change my eating habits to improve my health. Agree
  - c. My doctor asked me to change my eating habits to improve my health. Neither Agree nor disagree
  - d. My doctor asked me to change my eating habits to improve my health. Disagree
  - e. My doctor asked me to change my eating habits to improve my health. Strongly Disagree
  - f. My doctor asked me to change my eating habits to improve my health. Don't know
- 8. Rate your agreement with the following statements by checking the box that matches your agreement.
  - a. I'm not interested in changing my eating habits. Strongly Agree
  - b. I'm not interested in changing my eating habits. Agree
  - c. I'm not interested in changing my eating habits. Neither Agree nor disagree
  - d. I'm not interested in changing my eating habits. Disagree
  - e. I'm not interested in changing my eating habits. Strongly Disagree
  - f. I'm not interested in changing my eating habits. Don't know
- 9. Rate your agreement with the following statements by checking the box that matches your agreement.
  - a. I'm interested in improving my eating habits. Strongly Agree
  - b. I'm interested in improving my eating habits. Agree
  - c. I'm interested in improving my eating habits. Neither Agree nor disagree
  - d. I'm interested in improving my eating habits. Disagree
  - e. I'm interested in improving my eating habits. Strongly Disagree
  - f. I'm interested in improving my eating habits. Don't know
- 10. When you think about improving your eating habits, either now or in the future, do you have any of the following concerns? (choose all that apply)

- a. Healthy Food Access (I don't know where to find the healthy foods)
- b. Food Costs (I think healthy eating is expensive)
- c. Convenience (I don't want to change my current routines)
- d. Education (I don't know how to improve my eating habits)
- e. Equipment (I don't have proper cooking equipment or storage areas in my home)
- f. Skills (I don't know how to plan meals or cook the healthy foods)
- g. Time (I don't have time to plan nutritious meals or go shopping for healthy foods)
- h. NONE Some other concern not listed(please specify)
- 11. How many meals do you cook at home per week? (include all breakfasts, lunches, snacks and dinners)
  - a. Less than one meal per week
  - b. 1-2 meals per week
  - c. 3-4 meals per week
  - d. 5-6 meals per week
  - e. 6+ meals per week
- 12. How often do you cook with whole foods per week? (whole foods are fresh or minimally processed frozen foods without added sauces, flavorings, fats, sugars, or salt seasonings)
  - a. Less than once per week
  - b. 1-2 times per week
  - c. 3-4 times per week
  - d. 5-6 times per week
  - e. More than 6 times per week
- 13. Vegetable: How much vegetable do you eat each day?
  - a. None
  - b. Less than 1 cup
  - c. 1 cup
  - d. 1.5 cups
  - e. 2 cups
  - f. 2.5 cups
  - g. 3 cups
  - h. More than 3 cups
- 14. Fruit: How much fruit do you eat each day?
  - a. None
  - b. 0.5 cup
  - c. 1 cup
  - d. 1.5 cups
  - e. 2 cups
  - f. 2.5 cups
  - g. 3 cups
  - h. More than 3 cups
- 15. Have you participated in a CSA Program (Community Supported Agriculture) before? CSA stands for Community Supported Agriculture, a form of direct sale between farmer

and consumer. Payment is collected to effectively assist in "supporting" the farm during the spring when input costs are high. Throughout the season, CSA shares – or a box of locally grown fruits and vegetables - are delivered on a weekly basis to the consumer.

- a. Yes
- b. No
- c. I don't know what that is
- 16. Would you be interested in participating in a CSA if it was delivered to work?
  - a. Yes
  - b. No
  - c. Maybe
- 17. If available, how would you prefer to get information about your CSA Farm? Select up to 3.
  - a. Talk with the farmer
  - b. Social media (e.g. Facebook, Twitter, Instagram, Pinterest)
  - c. Texts from the farm
  - d. A farm website or blog
  - e. Print newsletter
  - f. Email newsletter
  - g. Farm events (tours, suppers, volunteer)
  - h. Other (please describe)
- 18. How important are wellness benefits and programs to you in a job search and/or with your job satisfaction? (10 being most important)
- 19. How satisfied are you with current health insurance coverage? (10 being most satisfied).
- 20. From question 14, Please share why you chose that value for your insurance satisfaction.
- 21. Would refunds or subsidies for preventative health measures improve your satisfaction with your coverage?
  - a. Yes
  - b. No
- 22. Would you be more likely to participate in a CSA if your payroll department set up a payroll deduct?
  - a. Yes
  - b. No
  - c. Other (please specify)
- 23. How many people live in your household including yourself?
  - a. Number of Adults
  - b. Number of children under 2 years old
  - c. Number of children over 2 years old
- 24. What best describes your highest level of formal education?
  - a. Some high school or less
  - b. Completed high school or GED
  - c. Some college, no degree
  - d. Completed 2-year associates degree

- e. Completed 4-year, bachelors degree
- f. Graduate or professional degree
- 25. What is your zip code?
- 26. Is there anything else you would like us to know?

#### Post-Survey

- 1. Where do you usually buy food?
  - a. Farmer's Market (examples: Sara Hardy Downtown Market, The Village Farmers Market, Gallagher Centennial Farm Market Store)
  - b. Locally-owned grocery store (Oleson's, Tom's, Honor Family Market, Anderson's IGA, Oryana Community CoOp)
  - c. National Supermarket Chain (Walmart, Shop n' Save, Meijer's, Save a lot, Aldi) A mix of all the above
  - d. Both locally owned and national stores but NOT Farmer's Markets
  - e. Other (please specify)
- 2. Choose the statement that best matches your top concern when buying food. (Pick one)
  - a. I buy whatever is most convenient
  - b. I buy foods that are easy to prepare
  - c. I buy foods with the lowest cost
  - d. I buy foods based on where the food is grown
  - e. I buy foods based on how the food is grown (organic, natural, grass fed)
  - f. I buy whatever looks good based on my taste preferences
  - g. Other (please specify)
- 3. Would you say that in general your health is:
  - a. Excellent
  - b. Very good
  - c. Good
  - d. Fair
- 4. Since January 2017, have you intentionally lost or gained body weight?
  - a. Yes, I've lost weight
  - b. Yes, I've gained weight
  - c. No, I've stayed the same weight
  - d. I'm not sure
- 5. Rate your agreement with the following statements by checking the box that matches your agreement.
  - a. Healthy Eating is important to me. Strongly Agree
  - b. Healthy Eating is important to me. Agree
  - c. Healthy Eating is important to me. Neither Agree nor disagree
  - d. Healthy Eating is important to me. Disagree
  - e. Healthy Eating is important to me. Strongly Disagree
  - f. Healthy Eating is important to me. Don't know
- 6. Rate your agreement with the following statements by checking the box that matches your agreement.

- a. I eat whatever tastes good without much thought. Strongly Agree
- b. I eat whatever tastes good without much thought. Agree
- c. I eat whatever tastes good without much thought. Neither Agree nor disagree
- d. I eat whatever tastes good without much thought. Disagree
- e. I eat whatever tastes good without much thought. Strongly Disagree
- f. I eat whatever tastes good without much thought. Don't know
- 7. Rate your agreement with the following statements by checking the box that matches your agreement.
  - a. Having access to locally grown food is important to me. Strongly Agree
  - b. Having access to locally grown food is important to me. Agree
  - c. Having access to locally grown food is important to me. Neither Agree nor disagree
  - d. Having access to locally grown food is important to me. Disagree
  - e. Having access to locally grown food is important to me. Strongly Disagree
  - f. Having access to locally grown food is important to me. Don't know
- 8. Rate your agreement with the following statements by checking the box that matches your agreement.
  - a. My doctor asked me to change my eating habits to improve my health. Strongly Agree
  - b. My doctor asked me to change my eating habits to improve my health. Agree
  - c. My doctor asked me to change my eating habits to improve my health. Neither Agree nor disagree
  - d. My doctor asked me to change my eating habits to improve my health. Disagree
  - e. My doctor asked me to change my eating habits to improve my health. Strongly Disagree
  - f. My doctor asked me to change my eating habits to improve my health. Don't know
- 9. Rate your agreement with the following statements by checking the box that matches your agreement.
  - a. I'm not interested in changing my eating habits. Strongly Agree
  - b. I'm not interested in changing my eating habits. Agree
  - c. I'm not interested in changing my eating habits. Neither Agree nor disagree
  - d. I'm not interested in changing my eating habits. Disagree
  - e. I'm not interested in changing my eating habits. Strongly Disagree
  - f. I'm not interested in changing my eating habits. Don't know
- 10. Rate your agreement with the following statements by checking the box that matches your agreement.
  - a. I'm interested in improving my eating habits. Strongly Agree
  - b. I'm interested in improving my eating habits. Agree
  - c. I'm interested in improving my eating habits. Neither Agree nor disagree
  - d. I'm interested in improving my eating habits. Disagree
  - e. I'm interested in improving my eating habits. Strongly Disagree
  - f. I'm interested in improving my eating habits. Don't know

- 11. When you think about improving your eating habits, either now or in the future, do you have any of the following concerns? (choose all that apply)
  - a. Healthy Food Access (I don't know where to find the healthy foods)
  - b. Food Costs (I think healthy eating is expensive)
  - c. Convenience (I don't want to change my current routines)
  - d. Education (I don't know how to improve my eating habits)
  - e. Equipment (I don't have proper cooking equipment or storage areas in my home)
  - f. Skills (I don't know how to plan meals or cook the healthy foods)
  - g. Time (I don't have time to plan nutritious meals or go shopping for healthy foods)
  - h. NONE Some other concern not listed(please specify)
- 12. How many meals do you cook at home per week? (include all breakfasts, lunches, snacks and dinners)
  - a. Less than one meal per week
  - b. 1-2 meals per week
  - c. 3-4 meals per week
  - d. 5-6 meals per week
  - e. 6+ meals per week
- 13. How often do you cook with whole foods per week? (whole foods are fresh or minimally processed frozen foods without added sauces, flavorings, fats, sugars, or salt seasonings)
  - a. Less than once per week
  - b. 1-2 times per week
  - c. 3-4 times per week
  - d. 5-6 times per week
  - e. More than 6 times per week
- 14. Vegetable: How much vegetable do you eat each day?
  - a. None
  - b. Less than 1 cup
  - c. 1 cup
  - d. 1.5 cups
  - e. 2 cups
  - f. 2.5 cups
  - g. 3 cups
  - h. More than 3 cups
- 15. Fruit: How much fruit do you eat each day?
  - a. None
  - b. 0.5 cup
  - c. 1 cup
  - d. 1.5 cups
  - e. 2 cups
  - f. 2.5 cups
  - g. 3 cups
  - h. More than 3 cups

16. Did your participate in the worksite CSA drop-off program?
a. Yes- continue to question 12.
b. No- skip to question 16.
17. Rate your satisfaction with the CSA.
a. 1
b. 2
c. 3
d. 4
e. 5
18. Price of the CSA
a. 1
b. 2
c. 3
d. 4
e. 5
19. Quality of the CSA
a. 1
b. 2
c. 3
d. 4
e. 5
20. Quantity of the CSA produce & other products
a. 1
b. 2
c. 3
d. 4
e. 5
f. Other (please specify)
21. Did you receive the \$100 CSA price reduction for having a child under the age 18 living
at home?
a. Yes- continue to question 14.
b. No- skip to question 16.
c. Not sure -skip to question 16.
22. Q15. Vegetable: Estimate how much vegetable your child eats each day?
a. None
b. Less than 1 cup
c. 1 cup
d. 1.5 cups
e. 2 cups
f. 2.5 cups
g. 3 cups
h. 3+ cups
23. Q16. Fruit: Estimate how much fruit your child eats each day?

- a. None
- b. 0.5 cup
- c. 1 cup
- d. 1.5 cups
- e. 2 cups
- f. 2.5 cups
- g. 3 cups
- h. 3+ cups
- 24. Please share your thoughts about our worksite's CSA program with Taste the Local Difference and the Farm. Include your thoughts about what we could change, improve, or keep the same for next year. We want all employees to give feedback even if you did not participate in the CSA.
- 25. If the CSA program is very similar next year, do you think you will sign up? (no commitments, just forecasting- thank you!)
  - a. Yes
  - b. No
  - c. Other (please specify)
- 26. Is there anything else you would like us to know? Use as much space a you need.