SCHOOL GARDENS
SONOMA COUNTY

Photo: Landpaths Bayer Farm

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A Survey of School Gardens
in Sonoma County, California

Made possible by the dedication and collaboration of School Garden Network of Sonoma County, Sonoma County Food System Alliance, County of Sonoma Department of Health Services, Sonoma State University, and Occidental Arts and Ecology Center.

TABLE OF CONTENTS

School Gardens of Sonoma County

A SURVEY OF SCHOOL GARDENS IN SONOMA COUNTY

ABOUT THIS REPORT

This report presents the results of a survey that was developed and conducted by the Sonoma County Food System Alliance, School Garden Network of Sonoma County, Sonoma State University, and Sonoma County Department of Health Services. The report provides an overview of school gardens in Sonoma County, highlighting the identified successes and challenges to creating and sustaining school gardens. The report is intended to be used as a planning tool for school gardens in Sonoma County and can be used in conjunction with the *Farm to School Sonoma County: Local Produce Survey of School Foodservice Leaders* (available at http://aginnovations.org) report to provide a picture of farm to school activities in Sonoma County.

ABOUT THE ORGANIZATIONS

The Sonoma County Food System Alliance is a forum for diverse stakeholders, such as food producers and distributors, food security organizations, public health advocates, and other community leaders, to work on increasing access to healthy food in Sonoma County and to envision, advocate for, and create a vibrant local food system in Sonoma County. More information can be found at: http://aginnovations.org/alliances/sonoma/

The School Garden Network of Sonoma County supports and promotes sustainable garden and nutrition-based learning programs in Sonoma County schools, connects school communities with fresh, locally grown foods, and provides a forum for exchanging information and resources. More information can be found at: www.schoolgardens.org/

The Hutchins School of Liberal Studies is a cluster school within the larger institution of Sonoma State University offering integrated subject matter and a thematic approach to learning. More information can be found at: www.sonoma.edu/hutchings/index.html

The Sonoma County Department of Health Services provides a broad range of innovative and creative services designed to protect, promote and achieve healthy individuals, families, and communities. More information can be found at: http://www.sonoma-county.org/health/

The Occidental Arts and Ecology Center is a nonprofit organizing and education center and organic farm in Northern California's Sonoma County. More information can be found at: http://www.oaec.org/

KEY HIGHLIGHTS

- A total of 189 Sonoma County schools were surveyed.
- Over three quarters (77%) of surveyed schools were public institutions, with the remainder being private schools.
- Elementary schools represented 68% of surveyed schools, middle schools represented 34%, and high schools represented 31% of total surveyed schools.
- Of the 189 schools surveyed, just over half reported currently having a garden, with elementary schools hosting almost half (48%) of total gardens reported.
- Of the schools reporting no garden, one quarter reported having a garden in the past that was unable to be sustained.
- Gardens are mostly used by primary grades, with a focus on teaching science and health.
- The most common reported barriers to implementing a school garden are lack of funding, adequate space, and the personnel to build or maintain the garden.
- The biggest challenges facing existing school gardens are sufficient and sustainable funding.
- Public charter schools have the highest percentage (72%) of active gardens.

BACKGROUND

A first step towards a healthier lifestyle can start with increasing food and agricultural literacy. Schools are recognized as an important channel for increasing awareness among youth and their families of the impact of food choices, and for teaching nutrition basics. It has also been shown that healthy eating habits established in the elementary years are more likely to persist into adulthood.[i] Sonoma County's Food System Alliance has identified food and agricultural literacy as a primary goal for community members of all ages.

Over the past three decades, the prevalence of overweight and obesity has doubled among preschool aged children and adolescents, and the prevalence has increased threefold among children ages 6 to 11 years in Sonoma County.[ii] In addition, only 58.1% of Sonoma County children are consuming the recommended servings of fruits and vegetables per day.[iii] Nationwide, the current generation could be the first to have a shorter life expectancy than their parents due to the rapid rise in childhood overweight and obesity.[iv]

Studies have demonstrated that hands-on school gardening activities positively change attitudes about fruit and vegetable consumption.[v] Improved nutrition is linked to improvements in academic performance, test scores, and mental and emotional well being.[vi] In addition to the effects of school garden programs on dietary behaviors and health outcomes, these programs also support experiential learning in many academic areas, enhanced appreciation of natural systems and the environment, and provide opportunities for cross-cultural and intergenerational experiences.[vii]

Small-scale school gardens and farm to school programs help teach children about land stewardship, as well as the environmental and economic importance of sustainable agriculture.[viii] A school garden can also provide a beautiful setting for community celebrations and events, and provides opportunities for physical activity. Additional information on efforts to bring local agricultural products to Sonoma County schools may be found in the related report, *Farm to School Sonoma County: Local Produce Survey of School Foodservice Leaders* available at http://aginnovations.org/alliances/sonoma/action/.

SURVEY METHODOLOGY

This survey was modeled on two previous surveys conducted by an outside consultant for Occidental Arts and Ecology Center's School Garden Teacher Training and Support Program, a long established teacher training program housed in Sonoma County. Teresa Dicolen, 2011 Master's of Public Health intern at the County of Sonoma Department of Health Services, designed the final survey instrument and trained a class of Sonoma State University (SSU) students to conduct the survey. SSU students in the upper division seminar, The Global Food Web, conducted data collection in May 2011, under the guidance of Professor Deborah Hammond, PhD. Interviews were conducted over the phone or via email at the preference of the interviewee. Data were later analyzed and compiled by Alison Malisa, MPH, on behalf of the County of Sonoma Department of Health Services and Sonoma County Food System Alliance.

Out of the 238 Sonoma County schools that were contacted to participate in the survey, 189 schools were determined eligible and successfully contacted. Schools not considered eligible for this survey included pre-schools not part of a larger elementary school, home-schools with populations below ten, virtual academies, and adult schools. Schools with a shared campus and/or garden were recorded as one school to represent all students' use of the garden.

Districts included in this report included: Alexander Valley Union, Bellevue, Bennett Valley Union, Cinnabar, Cloverdale Unified, Cotati-Rohnert Park Unified, Dunham, Forestville Union, Fort Ross, Geyserville Unified, Gravenstein Union, Guerneville, Harmony Union, Healdsburg Unified, Kenwood, Liberty, Mark West Union, Monte Rio

Union, Montgomery Elementary, Oak Grove Union, Old Adobe Union, Petaluma City Elementary, Petaluma Joint Union High, Piner-Olivet Union, Rincon Valley Union, Roseland, Santa Rosa City, Sebastopol Union, Sonoma Valley, Twin Hills Union, Two Rock Union, Waugh, West Side Union, West Sonoma County High, Wilmar Union, Windsor, and Wright.

Photo: Landpaths Bayer Farm

SURVEY RESULTS

INTRODUCTION

The survey results section provides the original survey question followed by the responses indicated in percentages and raw numbers. Survey responses are divided into three main categories: (1) schools with gardens; (2) schools without gardens; and (3) all schools surveyed.

RESULTS

Does your school currently have a garden that students participate in? (n=189)

- 58% (113) Yes
- 42% (76) No

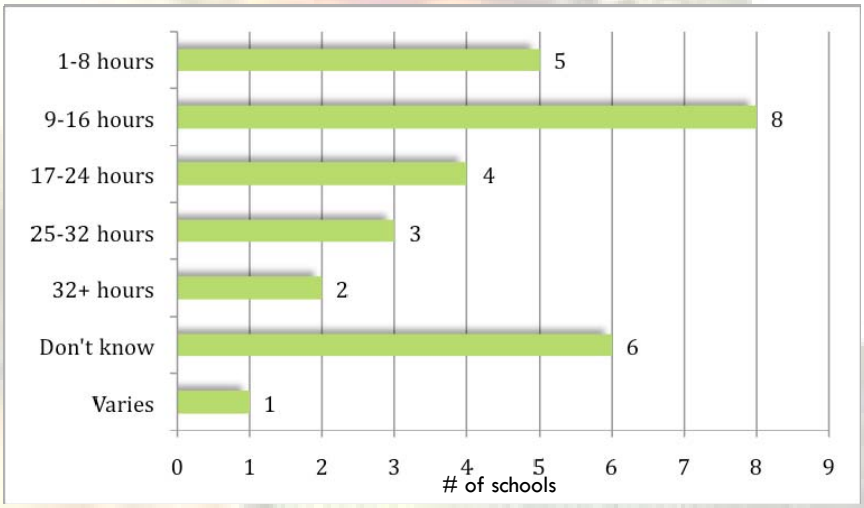
SCHOOLS WITH GARDENS (n=113)

OPERATIONS

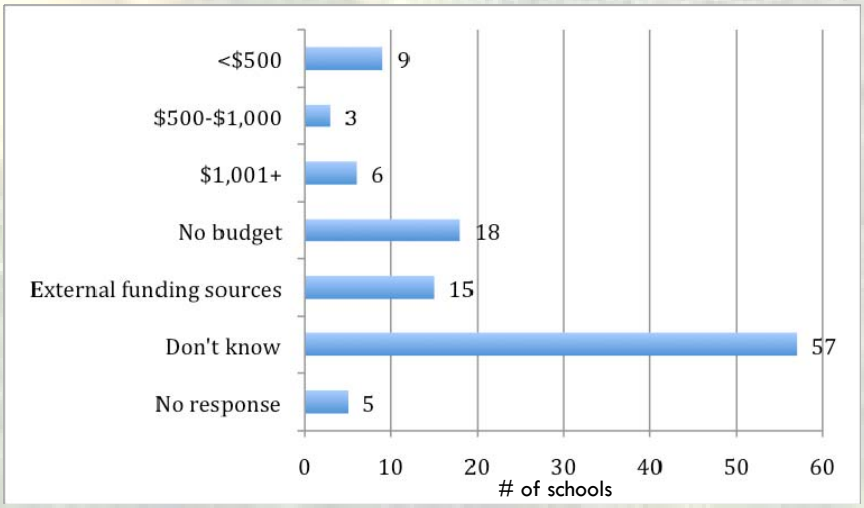
Does your school have a paid school garden coordinator position?

- 26% (29) Yes
- 65% (74) No
- 9% (10) No Response

If yes, how many hours per week do they work in your school?

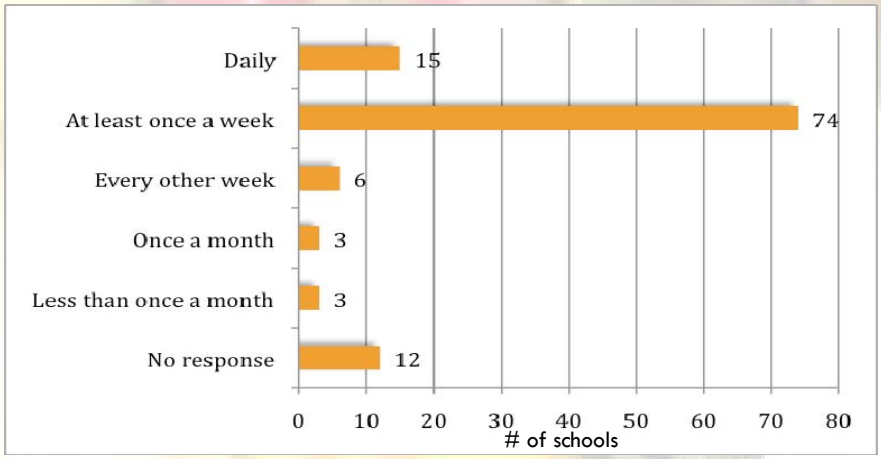


What is the annual budget of your school garden program?



STUDENT PARTICIPATION

How often do students use the garden?



In what curricular areas is the garden used? (Check all that apply.)

- 78% (88) Science
- 65% (74) Nutrition/Health
- 18% (20) English/Language Arts
- 12% (14) Visual and Performing Arts
- 22% (25) Mathematics
- 21% (24) Physical Education
- 20% (23) History/Social Science
- 18% (20) Other

How is produce from the school garden used? (Check all that apply.)

- 53% (60) Outdoor cooking or snacking
- 58% (65) Classroom activities (such as tastings)
- 18% (20) Incorporated in school meals
- 50% (57) Students or community members take it home
- 10% (11) Other

CHALLENGES & BARRIERS

What difficulties does your school encounter in having a garden?

Funding

- 31% (35) Not a problem
- 32% (36) Somewhat of a problem
- 26% (29) Significant problem
- 4% (4) Don't know
- 8% (9) No response

Adequate space

- 29% (82) Not a problem
- 16% (13) Somewhat of a problem
- 4% (5) Significant problem
- 3% (3) Don't know
- 9% (10) No response

Distance from school buildings

- 80% (90) Not a problem
- 7% (8) Somewhat of a problem
- 0% (1) Significant problem
- 4% (4) Don't know
- 9% (10) No response

Availability of gardening supplies

- 64% (72) Not a problem
- 19% (21) Somewhat of a problem
- 5% (6) Significant problem
- 2% (2) Don't know
- 11% (12) No response

Availability or cost of water

- 70% (79) Not a problem
- 10% (11) Somewhat of a problem
- 2% (2) Significant problem
- 9% (10) Don't know
- 10% (11) No response

Availability of volunteers

- 57% (65) Not a problem
- 23% (26) Somewhat of a problem
- 9% (10) Significant problem
- 1% (1) Don't know
- 10% (11) No response

People to maintain the garden during the school year

- 65% (73) Not a problem
- 18% (20) Somewhat of a problem
- 5% (6) Significant problem
- 1% (1) Don't know
- 12% (13) No response

People to maintain the garden during the summer

- 51% (58) Not a problem
- 23% (26) Somewhat of a problem
- 22% (17) Significant problem
- 2% (2) Don't know
- 9% (10) No response

Support from administration

- 75% (85) Not a problem
- 10% (10) Somewhat of a problem
- 5% (6) Significant problem
- 0% (0) Don't know
- 11% (12) No response

Support from teachers

- 79% (89) Not a problem
- 10% (11) Somewhat of a problem
- 3% (3) Significant problem
- 0% (0) Don't know
- 9% (10) No response

Leadership to sustain a garden program

- 73% (83) Not a problem
- 10% (9) Somewhat of a problem
- 4% (4) Significant problem
- 6% (7) Don't know
- 9% (10) No response

Availability of garden coordinator or other staff

- 55% (62) Not a problem
- 12% (14) Somewhat of a problem
- 11% (12) Significant problem
- 11% (13) Don't know
- 11% (12) No response

Availability of garden committee to plan activities

- 57% (65) Not a problem
- 15% (17) Somewhat of a problem
- 7% (8) Significant problem
- 11% (12) Don't know
- 10% (11) No response

Lack of overall interest of school community

- 80% (90) Not a problem
- 4% (4) Somewhat of a problem
- 4% (5) Significant problem
- 2% (2) Don't know
- 11% (12) No response

Lack of teacher training

- 73% (83) Not a problem
- 9% (10) Somewhat of a problem
- 3% (3) Significant problem
- 4% (5) Don't know
- 11% (12) No response

Relating the garden to school curriculum

- 73% (82) Not a problem
- 7% (8) Somewhat of a problem
- 6% (7) Significant problem
- 4% (4) Don't know
- 11% (12) No response

SCHOOLS WITHOUT GARDENS (n=76)

Status of schools without gardens. (Check all that apply.)

- 25% (19) Had a garden in the past
- 67% (51) Did not have a garden in the past
- 38% (29) Have considered having a garden
- 45% (34) Have not considered having a garden

CHALLENGES & BARRIERS

What difficulties does your school encounter in having a garden?

Lack of funding

- 17% (13) Not a problem
- 17% (13) Somewhat of a problem
- 37% (28) Significant problem
- 13% (10) Don't know
- 16% (12) No Response

Lack of adequate space

- 30% (23) Not a problem
- 18% (14) Somewhat of a problem
- 29% (22) Significant problem
- 8% (6) Don't know
- 14% (11) No response

Lack of gardening supplies

- 20% (15) Not a problem
- 28% (21) Somewhat of a problem
- 24% (18) Significant problem
- 13% (10) Don't know
- 16% (12) No response

Lack of knowledge about gardening

- 29% (22) Not a problem
- 25% (19) Somewhat of a problem
- 13% (10) Significant problem
- 17% (13) Don't know
- 16% (12) No response

No one to build or maintain garden

- 22% (17) Not a problem
- 22% (17) Somewhat of a problem
- 29% (22) Significant problem
- 11% (8) Don't know
- 16% (12) No response

Lack of support from administration

- 32% (24) Not a problem
- 24% (18) Somewhat of a problem
- 16% (12) Significant problem
- 14% (11) Don't know
- 14% (11) No response

Lack of support from teachers

- 29% (22) Not a problem
- 28% (21) Somewhat of a problem
- 14% (11) Significant problem
- 13% (10) Don't know
- 16% (12) No response

Lack of leadership

- 22% (17) Not a problem
- 24% (18) Somewhat of a problem
- 22% (17) Significant problem
- 16% (12) Don't know
- 16% (12) No response

Lack of garden curriculum

- 24% (18) Not a problem
- 26% (20) Somewhat of a problem
- 17% (13) Significant problem
- 17% (13) Don't know
- 16% (12) No response

Difficulty relating the garden to school curriculum

- 32% (24) Not a problem
- 25% (19) Somewhat of a problem
- 11% (8) Significant problem
- 16% (12) Don't know
- 17% (13) No response

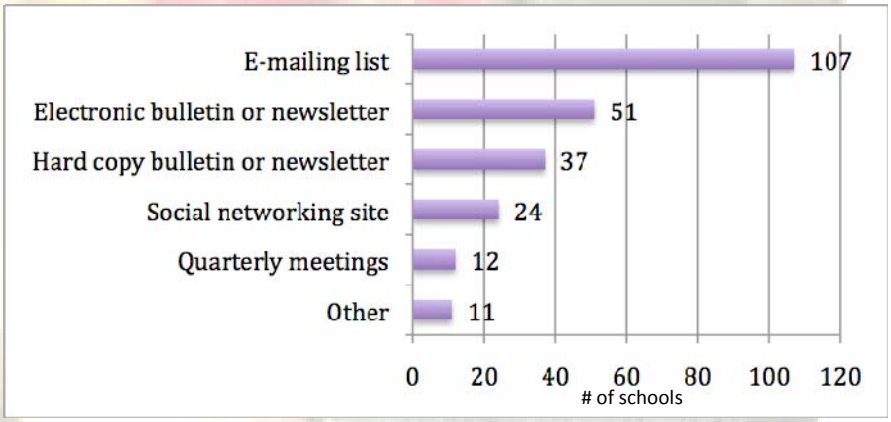
Lack of overall interest of school community

- 24% (18) Not a problem
- 30% (23) Somewhat of a problem
- 13% (10) Significant problem
- 17% (13) Don't know
- 16% (12) No response

Photo: Landpaths Bayer Farm

ALL SCHOOLS SURVEYED (n=189)

Which of the following methods would you use to connect with other school garden programs and resources? (Check all that apply.)



CAPACITY & INFRASTRUCTURE

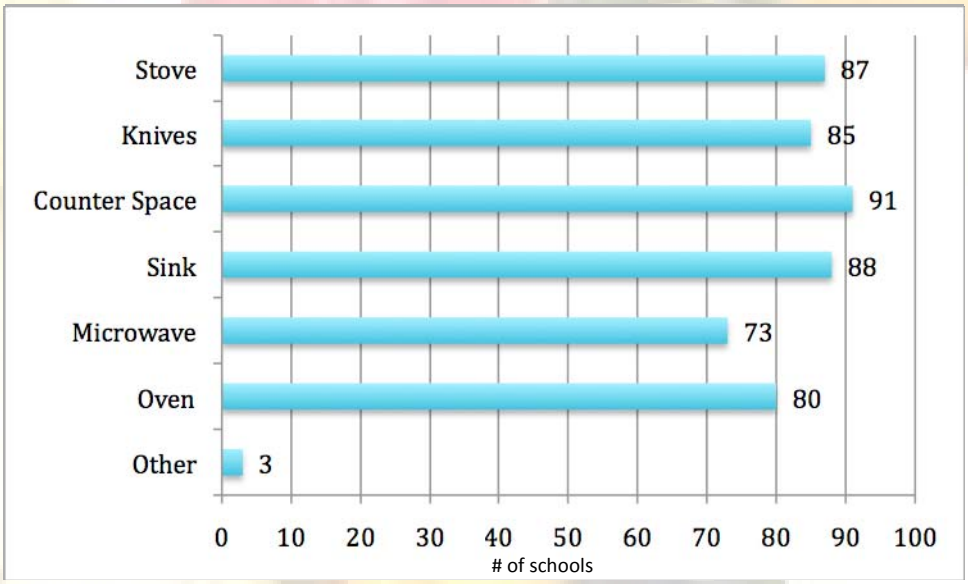
Does your school have a salad bar?

- 38% (71) Yes
- 44% (84) No
- 8% (15) Don't know
- 10% (19) No response

Does your school have a kitchen with the capacity to prepare school meals?

- 50% (95) Yes
- 31% (59) No
- 9% (18) Don't know
- 9% (17) No response

If your school has a kitchen, what are its amenities? (Check all that apply.)



Does your school's food service or cafeteria use any locally grown produce other than from the school's garden?

- 21% (39) Yes
- 7% (14) No
- 22% (42) Don't know
- 50% (94) No response

STUDY LIMITATIONS

While this report provides a valuable representation of the current status of school gardens in Sonoma County, it is also worth mentioning some of the study limitations. The inability to connect with a school staff member with a comprehensive understanding of the school garden to respond to the survey presented itself as a strong challenge to collecting consistent and accurate data. For example, funding was identified as the strongest barrier to school gardens, but few respondents knew the funding source or budget of their garden. In addition, survey data was handled by numerous volunteers, and therefore, could exhibit some inconsistencies or human errors. Lastly, the study was conducted over a period of a year, during a time of great transition for many Sonoma County schools.

DISCUSSION

Overall, for schools without gardens, lack of funding was cited as the biggest obstacle to creating a garden program. Other common challenges included no one to build or maintain the garden, and lack of garden leadership. Lack of space and supplies followed, but were not the main concern of most schools. Lesser concerns were community, teacher and administration support, gardening knowledge, or relating the garden to the curriculum. Forty-three percent of schools without gardens cited lack of school community support as somewhat or a significant problem. Most concerns, other than space limitations, could generally be connected to a lack of funding.

For schools that already had a garden, funding was a significant concern for about a third of respondents. Most of the questions addressing challenges generally encountered in school gardens were not considered to be substantial barriers to the respondents. Just over a quarter of schools had a paid school garden coordinator, and almost a quarter of respondents considered the absence of a paid garden coordinator to be somewhat of a problem or a significant problem. When asked about the budget for a school garden, most respondents did not know if there was a budget or where funding came from.

Most of the schools did not have a stable source of funding. Some cited variable financial support through fundraisers, private donations, and/or school funds. Further investigation would provide more information on successful funding systems, and perhaps suggest some strategies to make school garden programs more sustainable.

A seminal event in the blossoming national dialogue on local and small-scale food production was the installation of an educational organic garden by First Lady Michelle Obama. With increased concern about where our food comes from and the need for implementing sustainable agricultural methods, public interest in school garden programs is growing. Sonoma County, a stronghold of interest and support for local, fresh food is home to many long-established school garden programs.

Based on information gleaned from this survey, additional stakeholder involvement and innovative funding strategies would help school garden programs flourish in Sonoma County. This report is intended to help raise awareness of the value and scope of school garden and farm to school programs in Sonoma County and to encourage support from the greater community.

SCHOOL GARDEN RESOURCES

Information on school garden research, funding, professional development, and curriculum is available from the following websites:

- School Garden Network of Sonoma County website at http://www.schoolgardens.org
- California School Garden Network site at http://www.csgn.org
- Kids Gardening http://www.kidsgardening.org/grants-and-awards
- Occidental Arts and Ecology Center School Garden Teacher Training and Support Program www.oaec.org
- Life Lab lifelab.org/for-educators/schoolgardens/
- Garden abcs gardenabcs.com/Lessons.html
- UC Davis Center for Nutrition in Schools cns.ucdavis.edu/resources/garden/index.cfm
- For Wild http://www.for-wild.org/seedmony.html
- Whole Kids Foundation http://www.wholekidsfoundation.org/gardengrants-application.php

ENDNOTES

i http://www.csgn.org/sites/default/files/nutritionbrief.pdf

ii California Health Interview Survey, http://www.chis.ucla.edu/.

iii California Health Interview Survey, http://www.chis.ucla.edu/.

iv S. Jay Olshansky, et al, A Potential Decline in Life Expectancy in the United States in the 21st Century, New England Journal of Medicine, 2005; 352:1138-1145.

v Ratcliffe, M.M., et al. "The Effects of School Garden Experiences on Middle School-Aged Students' Knowledge, Attitudes, and Behaviors Associated with Vegetable Consumption." Health Promotion Practice (2011) 12.1: 36-43. Print.

vi http://www.csgn.org/sites/default/files/Research%20Supports%20Garden-Based%20Learning.pdf

vii http://www.csgn.org/sites/default/files/Research%20Supports%20Garden-Based%20Learning.pdf

viii Klemer, C.D., et al, "Growing Minds: he effect of school gardening program on the science achievement of elementary students," HortTechnology, 15 (3) 448-452, 2005.