

# Facilitating Fresh: State Laws Supporting School Gardens Are Associated With Use of Garden-Grown Produce in School Nutrition Services Programs

Lindsey Turner, PhD<sup>1</sup>; Julien Leider, MA<sup>2</sup>; Elizabeth Piekarz, JD<sup>2</sup>; Rebecca M. Schermbeck, MPH, RD<sup>2</sup>; Caitlin Merlo, MPH, RD<sup>3</sup>; Nancy Brener, PhD<sup>4</sup>; Jamie F. Chriqui, PhD<sup>2</sup>

## ABSTRACT

**Objective:** To examine whether state laws are associated with the presence of school gardens and the use of garden-grown produce in school nutrition services programs.

**Design:** Nationally representative data from the School Health Policies and Practices Study 2014 were combined with objectively coded state law data regarding school gardens.

**Main Outcome Measures:** Outcomes were: (1) the presence of a school garden at each school (n = 419 schools), and (2) the use of garden-grown items in the school nutrition services program.

**Analysis:** Multivariate logistic regression was used to examine each outcome. Contextual covariates included school level, size, locale, US Census region, student race/ethnic composition, and percentage of students eligible for free and reduced-priced meals.

**Results:** State law was not significantly associated with whether schools had a garden, but it was associated with whether schools used garden-grown items in nutrition services programs (odds ratio, 4.21;  $P < .05$ ). Adjusted prevalence of using garden-grown items in nutrition services programs was 15.4% among schools in states with a supportive law, vs 4.4% among schools in states with no law.

**Conclusions and Implications:** State laws that support school gardens may facilitate the use of garden-grown items in school nutrition service programs. Additional research is needed regarding the types of messaging that might be most effective for motivating school administrators to appreciate the value of school gardens. In addition, another area for further research pertains to scaling garden programs for broader reach.

**Key Words:** garden, school, policy, lunch, fruit, vegetable, farm-to-school (*J Nutr Educ Behav.* 2017; ■:1-9.)

Accepted March 6, 2017.

## INTRODUCTION

Adequate consumption of fruit and vegetables (FV) is a crucial aspect of a healthful diet.<sup>1</sup> However, for most children in the US, daily FV intake is below optimal levels.<sup>2</sup> Because of the crucial impact of the early years in establishing lifelong dietary prefer-

ences,<sup>3</sup> promoting healthy habits among children and adolescents is essential. Improving FV access and intake also has important implications for addressing health disparities: Children from lower-income families are disproportionately affected by preventable diseases associated with dietary inadequacies.<sup>4</sup> Among adults,

youth, and children, dietary inadequacies are often associated with community-level environmental factors such as limited access to fresh FV.<sup>5</sup>

School gardens are a promising and potentially innovative strategy for increasing access to healthful food options and for addressing factors associated with dietary behaviors such as nutrition knowledge and preferences for FV.<sup>6-8</sup> Research documents the potential of school garden programs and associated cooking programs to improve the willingness of students to taste new vegetables.<sup>6,9</sup> Several studies examine how school gardens can be used to complement nutrition education programs, which provide students with important content knowledge about healthy dietary habits. The use of garden-enhanced nutrition education curricula can improve students' nutrition knowledge<sup>10</sup> as well as behavioral outcomes

<sup>1</sup>College of Education, Boise State University, Boise, ID

<sup>2</sup>Institute for Health Research and Policy, University of Illinois at Chicago, Chicago, IL

<sup>3</sup>Division of Population Health, Centers for Disease Control and Prevention, Atlanta, GA

<sup>4</sup>Division of Adolescent and School Health, Centers for Disease Control and Prevention, Atlanta, GA

*Conflict of interest disclosure:* The authors' conflict of interest disclosures can be found online with this article on [www.jneb.org](http://www.jneb.org).

Address for correspondence: Lindsey Turner, PhD, College of Education, Boise State University, 1910 University Dr, Boise, ID 83725-1700; Phone: (208) 426-1632; Fax: (208) 426-1632; E-mail: [lindseyturner1@boisestate.edu](mailto:lindseyturner1@boisestate.edu)

©2017 Society for Nutrition Education and Behavior. Published by Elsevier, Inc. All rights reserved.

<http://dx.doi.org/10.1016/j.jneb.2017.03.008>

such as FV consumption.<sup>11</sup> An increasing volume of research in recent years demonstrated the value of school gardens not only for dietary outcomes but also for several additional outcomes such as science learning<sup>12,13</sup> and increased physical activity.<sup>14</sup> Despite grassroots enthusiasm for gardening, including efforts such as the garden in every school movement in California that began in 1995, a review of the research on school gardens noted that questions remain about exactly how to promote the adoption and sustainability of these programs.<sup>15</sup>

A trend that overlaps considerably with school garden programming is the farm to school (FTS) movement, which seeks to incorporate fresh, locally grown food into schools. As of 2014, 42% of districts across the country had at least 1 school that participated in FTS activities.<sup>16</sup> Although many variations exist among the structure and types of activities involved in FTS programs, they often include multiple strategies such as classroom nutrition education, farm tours, food tastings, and school gardens. School gardens were often a key element of FTS programs, and gardens were more common where a broader FTS program operated at the school.<sup>17</sup>

Thus far, however, few studies examined the incorporation of FV grown in a school garden into school nutrition programs, as a comprehensive integration of garden programming into broader aspects of the school environment. A recent study of a garden-based intervention in 5 middle schools included a cafeteria component, in which locally grown vegetables were incorporated into meals. Students who were exposed to multiple programming elements (eg, taste tests, farm visits, cafeteria components) had higher consumption of FV, increased self-efficacy and knowledge, and lower preferences for unhealthy foods.<sup>18</sup> However, it is unclear to what extent the garden-grown items were incorporated into meals or whether the cafeteria component instead represented more of an FTS sourcing approach. Encouragingly, 1 of the few studies thus far to examine the use of garden-grown FV in school meals found positive results for student dietary outcomes. In 2012,

a small-scale study among 370 students at 1 high school assessed the impact of incorporating school-grown leafy greens into salads served in the school lunch meal, and found an increase in student selection of salad from 2% to 10%; on average, students ate two thirds of salad servings that they took.<sup>19</sup>

Although national prevalence estimates on the incorporation of garden-grown items into school meals are limited, recent data provide insights into whether schools are using such practices. The 2014 Farm to School Census assessed the types of FTS activities conducted in more than 12,000 districts across the country and found that 44% of school districts had at least 1 school with a garden; among those districts, 23% served garden-grown products in the cafeteria. In other words, approximately 10% of districts had schools in which garden-grown items were used in meals. The only other large-scale source of information from across the country regarding the use of FV grown in school gardens in a school nutrition program was the School Health Policies and Practices Study (SHPPS). This recurring survey, conducted by the Centers for Disease Control and Prevention (CDC), periodically gathers information in nationally representative samples of schools. School-level data from 2014 indicated that only 5.5% of schools used garden-grown food in school nutrition services programs.<sup>20</sup>

Although research has not yet conclusively shown the benefits of serving garden-grown FV in school meals, the literature on this topic is growing, and given preliminary evidence documenting increases in salad bar selection and consumption when students are served school-grown vegetables,<sup>19</sup> taken together with other benefits of school gardens and broader FTS programs for improving student knowledge, attitudes, and behaviors, this school-level practice deserves continued attention. There is still much to be learned about how to facilitate the school-level practice of using garden-grown items in school food programs, but supportive policies may be a crucial factor. As of the 2013–2014 school year, 14% of school districts across the country addressed school gardens in their well-

ness policies.<sup>21</sup> Importantly, previous work showed that FTS-related laws at the state level were associated with higher prevalence of school-level FTS programming<sup>22</sup> and with the important outcome of increased student access to FV in school meals.<sup>23</sup> The current study was conducted to examine the association between state laws and 2 school-level practices: having a school garden, and serving garden-grown foods in school nutrition services programs.

## METHODS

This analysis linked data on school practices that were gathered through the CDC's SHPPS with state-level legal analysis conducted as part of the National Wellness Policy Study at the University of Illinois at Chicago. Both data sources and their relevant measures are described subsequently.

### School-Level Data

The SHPPS is a national survey conducted periodically by the CDC to assess school health policies and practices at the state, district, school, and classroom levels. This project used school-level data gathered between February and June, 2014. A brief description of methods is provided here, with extensive details available elsewhere.<sup>20</sup> A 2-stage sample design was used to generate a nationally representative sample of elementary, middle, and high schools. All public, private, and state-administered schools in the US, containing kindergarten through grade 12, were eligible for sampling. In each school, the principal or other school contact identified the most knowledgeable respondent for each questionnaire. Trained interviewers visited each school to conduct computer-assisted personal interviews. Seven school-level questionnaires were administered; this research used data gathered from the school nutrition services and healthy and safe school environment questionnaires. Participation rates for these questionnaires were 69% and 71%, respectively, of eligible schools. Nonparticipating schools either did not participate in the overall study or did not complete any questions on the particular questionnaire. The School Health Policies and

Download English Version:

<https://daneshyari.com/en/article/4939408>

Download Persian Version:

<https://daneshyari.com/article/4939408>

[Daneshyari.com](https://daneshyari.com)