NEBRASKA

2018 SCHOOL GARDEN NEEDS ASSESSMENT

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NEBRASKA DEPARTMENT OF EDUCATION

SCIENCE LITERACY

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Farm to School Surveys: School Gardens
November 2020

If you have any questions or concerns regarding the information reported within, please contact us at:

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Contents

Nebraska School Garden Assessment

In October 2018, 427 school personnel opened a survey link sent to them over email. After removing respondents who did not answer any questions, 361 responses remained. These responses were analyzed for overall descriptive statistics, as well as the following breakdowns:

- Locale: Urban (n=55) vs. rural (n=306)
- Type: Private school (n=55) vs. Public school (n=306)
- Income: Free Reduced – Lunch (FR) below 50% (n=220) vs. FR 50% and above (n=105)
- Respondent role: Agricultural educator (FFA) responding (n=81) vs. others (n=280)

Locale and income data from the National Center for Education Statistics common core of data for Nebraska, and agricultural educator data from self-report (write-in), and the Future Farmers of America (FFA) school and teacher directory. Only statistically significant group breakdowns are displayed.

Demographic

Respondents were asked to choose from a list of 6 (+ other support organization, specify) descriptions of their role (Table 1). Almost half of respondents said they were school administrators, followed by teachers. About half of the respondents (49%) were coded as school administrators, 22% as FFA, 13% as teachers, and 16% as other.

Table 1: Type of roles (n=361)

School administrator	73%
Teacher	16%
Other support organization (please specify)	6%
Other school staff	5%
Non-profit support organization	3%

Altogether, the respondents represented at least 165,839 students across the state, with an average of 459 students, ranging from 15 to over 5,700 students. The school grades ranged from pre-kindergarten to grade 12, with most schools having pre-kindergarten as the lowest grade (68%) and grade 12 as the highest (62%).

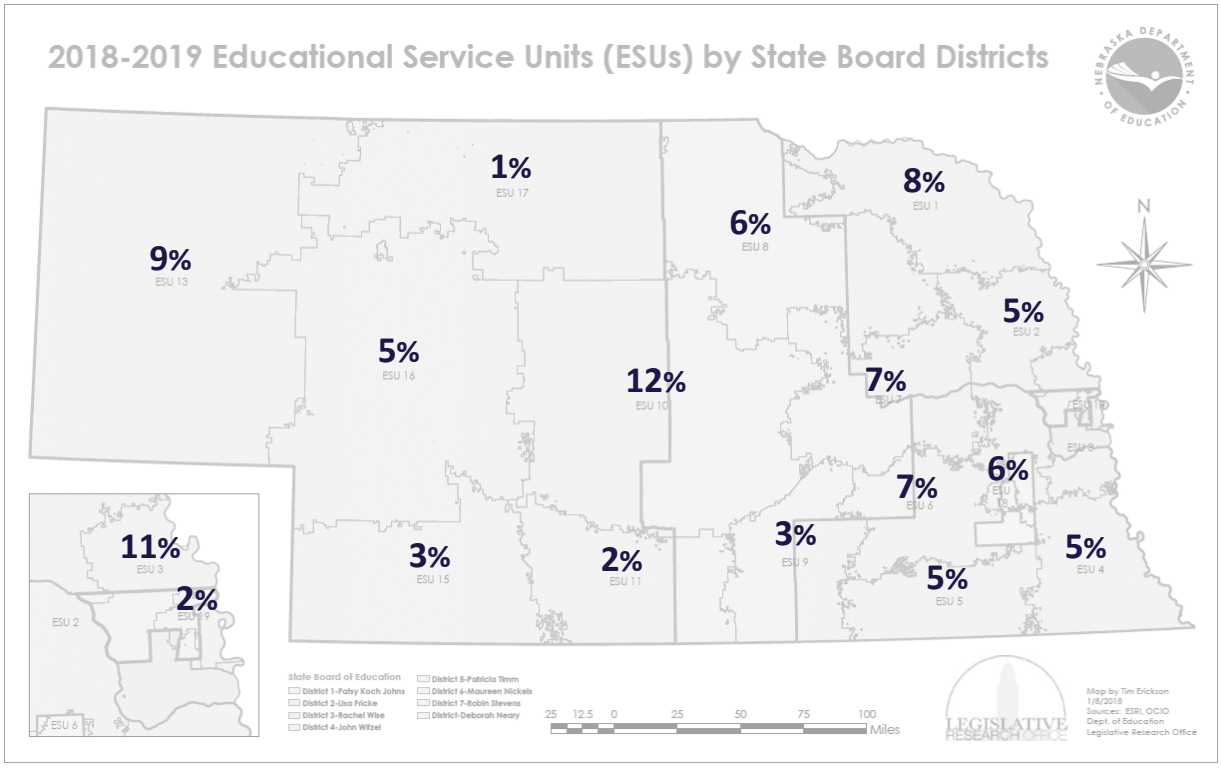
Locale was used to define urban versus rural respondents (Table 1). Those who were city would be grouped together into “urban” while rural and suburb would be grouped together into “rural.”

Table 2: NCES Locales (n=361)

City: Large	14%	Urban
City: Small	1%	
Suburb: Large	4%	
Town: Fringe	2%	
Town: Distant	7%	
Town: Remote	10%	Rural
Rural: Fringe	5%	
Rural: Distant	19%	
Rural: Remote	38%	

To assess the representation of respondents across the state, but reduce identifiability, locations were matched to their Education Service Units (ESUs). The highest representation was from ESU 10 (Kearney), followed by ESU 3 (Omaha). The lowest representation was from ESU 17 (Ainsworth).

Figure 1: Respondents across Nebraska by Educational Service Unit



Free or reduced lunch data was available for 325 sites. The percentage of students receiving free or reduced lunch at each school ranged from 2% to 98% with an average of 42%.

School Garden Description

Respondents answered whether their school ever had a garden or other growing space (greenhouse, community garden, aquaponics, tower gardens, etc.), 61% (n=219) did have a garden. Public schools were more likely than private to ever had a garden (65% vs. 38%, $p<0.001$). Schools that never had a garden were asked about the reasons why they did not have a school garden or other growing space (check all that apply). Nearly half of respondents (48%) said they lacked ability to care for a garden during summer months and/or lacked financial support, with the remaining split between different reasons (Table 3). The most common other reason was that they had not thought about it.

Table 3: Explanations for lack of school garden or other growing space (n=140)

Lack of ability to care for garden during summer months	48%
Lack of financial support	47%
Not enough interest in having a garden	42%
Inadequate space on school grounds	34%
Lack of staff	33%
Lack of volunteers	31%
Lack of instructional materials	22%
Lack of gardening expertise	21%
Increased risk of vandalism or liability	7%
Lack of access to water	1%
Other (Please specify.)	14%

There were significant differences based on school and respondent characteristics. Schools with at least 50% of their students qualifying for free or reduced lunch (FR) were more likely than those with fewer FR students to claim four reasons as barriers (Figure 2), with neglect in summer months and financial support reported by the most respondents. Agriculture educators (FFA) were more likely than other respondents to say lack of bodies were a barrier, specifically staff and volunteers (Figure 3).

Figure 2: Reasons why school does not have access to a school garden or other growing space. Lack of… (n=138)

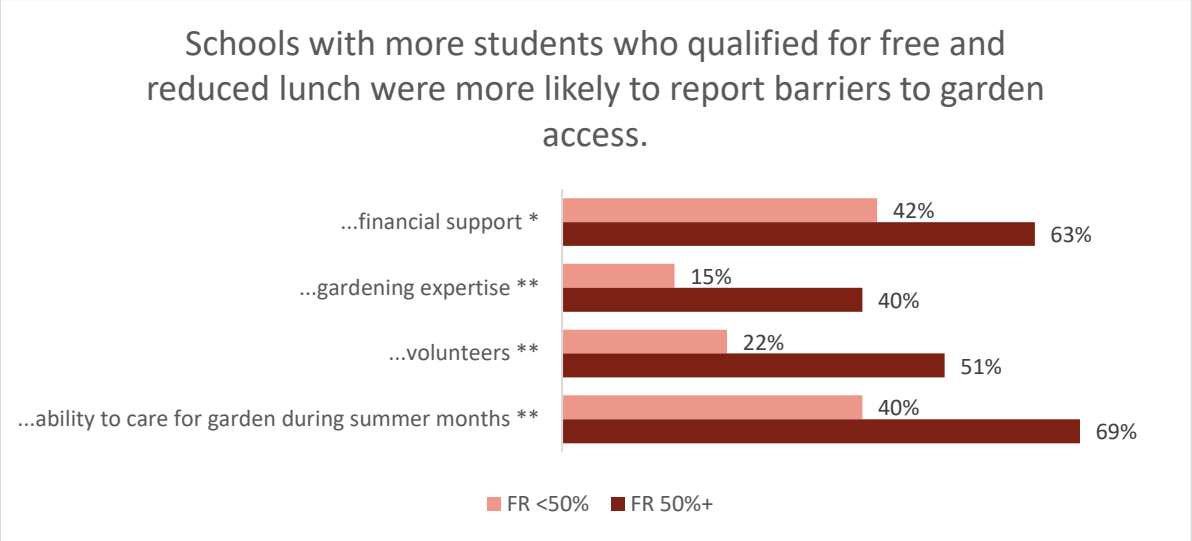
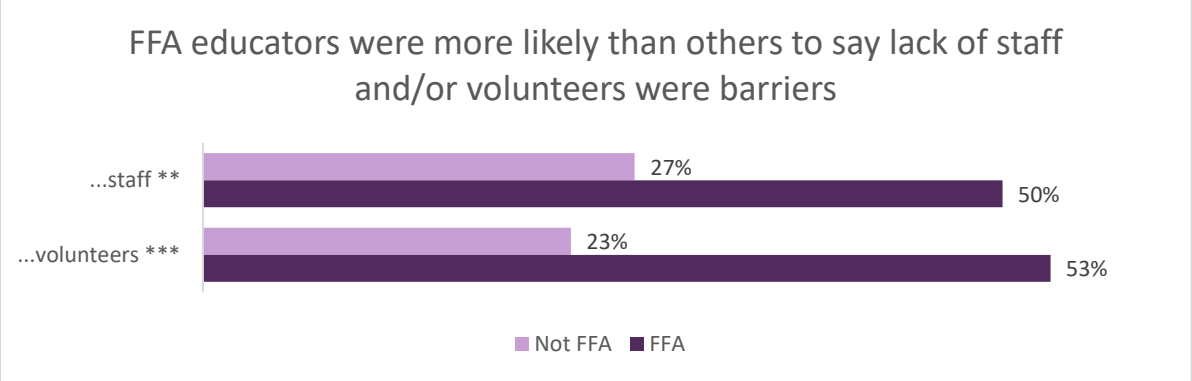


Figure 3: Reasons why school does not have access to a school garden or other growing space. Lack of… (n=138)



Garden-less sites were asked how interested they were in gaining access to a school growing space. A quarter of respondents were moderately interested, while the remaining were almost equally split between not at all interested (22%), very interested (21%), and slightly interested (20%). Only 12% were extremely interested in gaining access to a school garden or other growing spaces.

Schools that had ever had a garden or other growing space were asked if they currently had a garden when the survey was collected. Out of 219 sites, 15% responded they did NOT currently have a growing space. While two-thirds of respondents in urban areas had gardens, 88% of respondents in rural locations had gardens ($p<0.01$). Public schools were more likely than private schools to have gardens (85% vs. 76%, $p<0.001$). When asked about their interest in gaining access to a growing space again, 38% of respondents were moderately interested, while the remaining were almost equally split between very interested (23%), and slightly interested (21%). Fifteen percent were not at all interested, and 3% were extremely interested in re-gaining access to a school garden or other growing spaces.

When asked the reasons for why the garden or growing space is no longer utilized (check all that apply), about 40% of respondents experienced loss of garden leader(s), volunteers, and interest. The other potential reasons listed were less common (Table 4). Other reasons included vandalism, storm damage, lack of leadership, and new construction. Respondents from private schools were six times as likely as those from public schools to say they did not know the reason why (60% vs. 10%, $p<0.05$).

Table 4: Reasons why garden or growing space is no longer utilized (n=34)

Loss of garden leader(s)	41%
Loss of volunteers	41%
Loss of interest	38%
Loss of access to the growing space (e.g., school renovations, parking lot, etc.)	29%
Lack of funding for continued garden management	21%
Lack of gardening expertise	18%
Unknown reason(s)	18%
Issue with groundskeeper(s)	3%
Issues with plant health (e.g., insect pests, disease, poor soil, etc.)	0%
Other (Please elaborate.)	15%

Schools with a garden or other growing space reported how long their garden had been operating. Thirty percent responded their gardens had been operating for 1-3 years, while there was split between <1 year (20%), 4-6 years (21%), and > 10 years (20%). Only 9% reported their gardens had been operating for 7-9 years. On average, FFA respondents reported "younger" school gardens than other teachers, administrators, or those in other roles – 1-3 years vs. 4-6 years ($p<0.05$). About two-thirds (67%) reported their schools received funding to support creating/starting growing space, with an average of $20,266 ranging from $100 to $160,000. Public schools (68%) were more likely to report getting start-up support than private schools (57%, $p<0.001$).

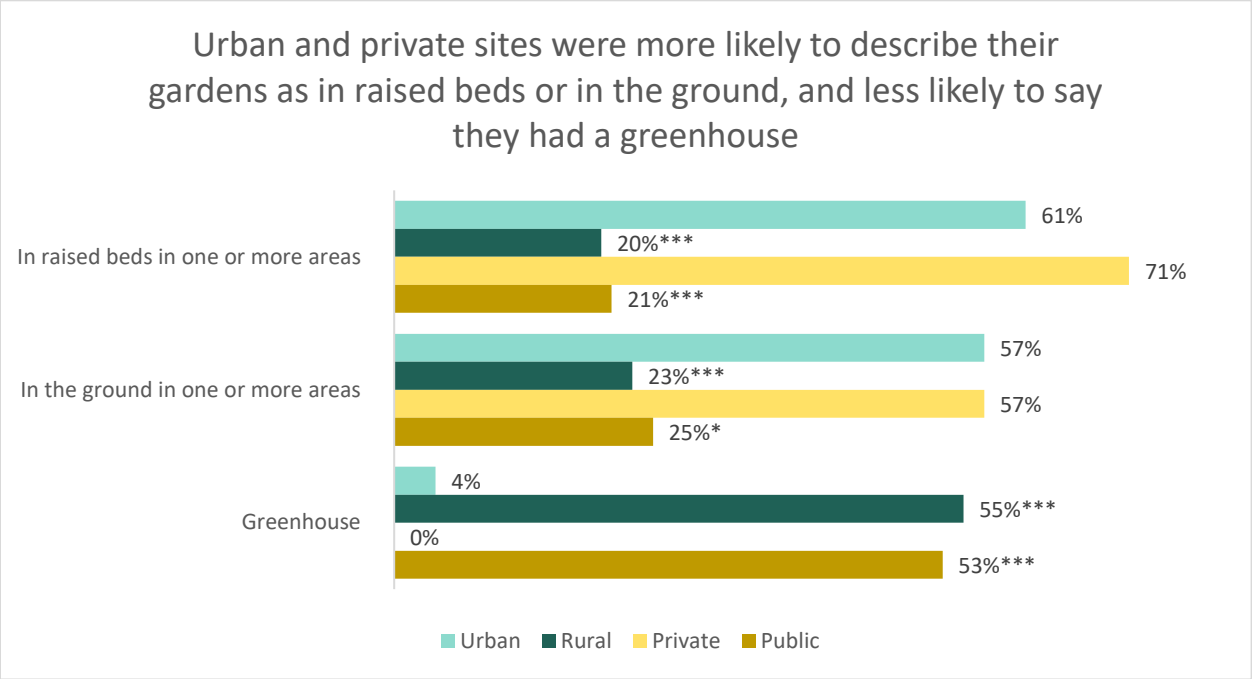
Nearly half (47%) of respondents described their garden as having a greenhouse, with the remaining split between different descriptions (Table 5). Off campus locations were described as nearby, and usually community gardens. Out of 46 "other" answers, 34 described a garden tower, and 6 described aquaponic gardens. Urban respondents were more three times as likely to say their garden had raised beds (61% vs. 20%, $p<0.001$).

Table 5: Description of school garden (n=185)

Greenhouse	47%
In the ground in one or more areas	26%
In raised beds in one or more areas	24%
In planters/pots/containers	18%
Off school campus (Please specify location.)	7%
Hoop house	2%
Other (Please specify.)	24%

The three most common descriptions varied by locale and type of school (Figure 4). Urban and private schools were three times as likely as their counterparts to say their gardens were in raised beds, and twice as likely to say their garden was in the ground. However, greenhouses were much more likely to be used in rural and public schools.

Figure 4: Description of school garden (n=185)



Most of the schools grew vegetables (84%) in their school gardens in the 2018-2019 school year (Table 6). More than half of schools grew ornamental plants (58%) and herbs (51%), while nuts were the least common plants grown (1%). Most "other" answers were ornamentals (like a butterfly garden or poinsettias). Urban schools were more likely than rural to say they planted Nebraska native plants (43% vs. 24%, $p<0.05$).

Table 6: Types of plants exist/will be grown in your school garden this academic year (n=177)

Vegetables	84%
Ornamentals (any non-edible plants)	58%
Herbs	51%
Nebraska native plants	27%
Fruits	16%
Nuts	1%
Other (Please specify)	10%

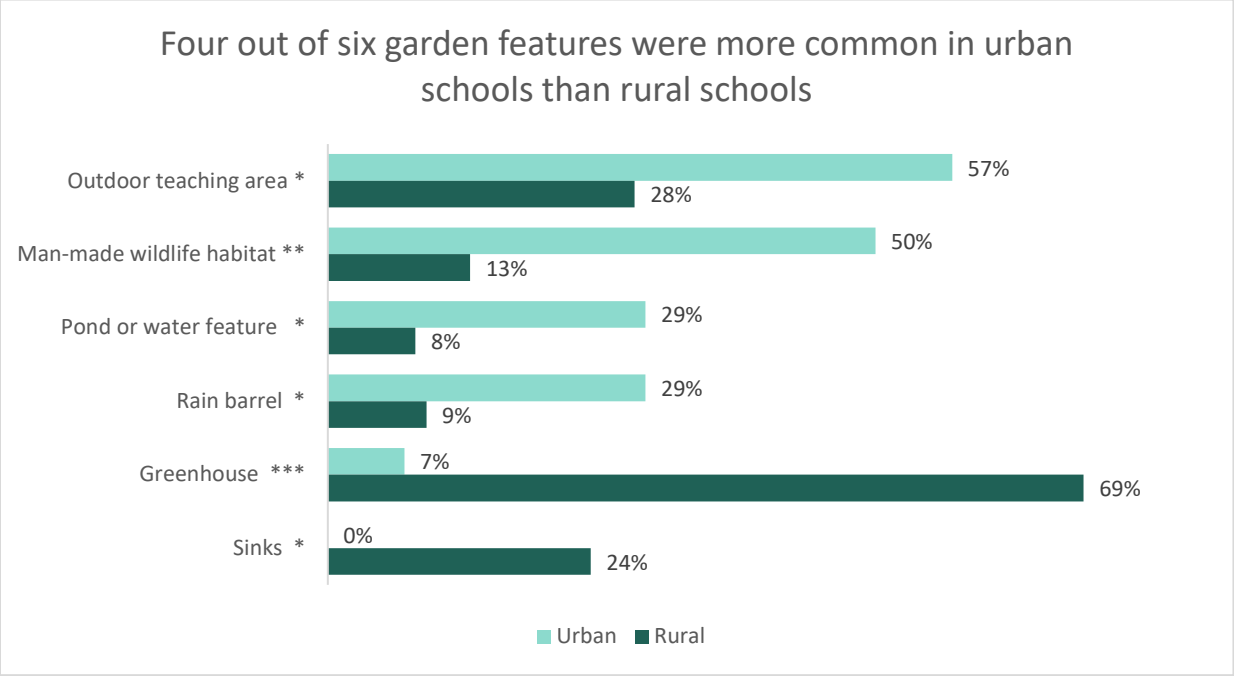
The respondents also reported the features in their school gardens (Table 7). More than half (62%) reported having a greenhouse. A third reported having a tool shed/storage area (33%), and 31% had an outdoor teaching area, while more than a quarter had automated irrigation (26%). Solar panels were the least common garden feature. There were some differences by school and respondent characteristics. Public schools were six times as likely as private schools to say they had a greenhouse (66% vs. 10%, $p<0.001$), and schools with fewer students on free and reduced lunch were eight times as likely to say they had a rain barrel (16% vs. 2%, $p<0.05$). Respondents who were not agriculture educators (FFA) were more than five times as likely as FFA respondents to say they had a compost area (22% vs. 4%, $p<0.05$).

Table 7: School garden features (n=141)

Greenhouse	62%
Tool shed/storage area	33%
Outdoor teaching area (e.g., benches, tables, etc.)	31%
Automated irrigation	26%
Sinks	21%
Compost area	19%
Man-made wildlife habitat (e.g., bird bath, bird feeder, bird or bat houses, etc.)	16%
Rain barrel	11%
Pond or water feature	10%
Food prep/kitchen area	8%
Domestic animals (e.g., chickens, ducks, rabbits, etc.)	7%
Worm bin	6%
Weather station	6%
Interpretive signage	5%
Solar panels	2%

There were also a great number of differences by the locale of the school (Figure 5). Urban schools were more likely to have outdoor teaching areas, created wildlife habitats, pond or water features, and rain barrels, but were less likely to have a greenhouse, and none reported having sinks.

Figure 5: School garden features (n=141)



Garden-Based Learning

Respondents were asked if the school garden or other growing space was used to support student learning. Out of 178 responds, 97% used their school garden or other growing space to support student learning. Of the five sites that did not use their garden for student learning, four of them said they lacked garden-based instructional resources, three said they lacked professional development and/or instructional time, and two said they lacked standards-aligned learning in the garden. None reported

concern that students might harm or disturb the garden, or concern about student behavior in the garden.

Respondents that used their garden or other growing space to support student learning were asked to select times when the garden was used to support student learning (Table 8). Over 90% reported using the garden during class instruction time and nearly half reported using it after school (48%), while the remaining split between different times. Sites with more students on free and reduced lunch were more likely to use the garden during class instruction time (95% vs. 80%, $p<0.01$). While the least common time, urban (22%) and private (23%) schools were more likely to use the garden during recess, compared to rural (5%) and public (6%) schools ($p<0.05$).

Table 8: When the garden is used to support student learning (n=172)

During class instruction time	91%
After school	48%
Summer program/camp	27%
Before school	14%
Non-school community uses	12%
During recess	7%
Other (Please specify.)	4%

Respondents who reported using the garden or other growing space during class instruction time were asked the estimated percentage of their students who visited the garden for formal classroom instruction in the academic year (Table 9). Nearly third (27%) estimated their schools spent 10% for visiting the gardens and the remaining split between different percentage. Only 19% reported more than 50% of the school's students visited the garden for formal instruction. Urban sites reported a higher number of students (between 40-50%) than rural sites (30%, $p<0.05$).

Table 9: Percentage of students instructed in the garden in the academic year (n=157)

10%	27%
20%	19%
30%	20%
40%	10%
50%	5%
60%	7%
70%	3%
80%	4%
90%	3%
100%	3%

Respondents also identified the personnel who taught the students in the garden (Table 10). Over 80% reported school teachers taught students in the garden the most, followed by paid school staff (31%), and the other personnel listed were less common. Of the seven sites that selected "other," three worked with an Extension office. About a quarter or schools with at least 50% of students qualifying for free or reduced lunch (27%) said paid school staff taught students in the garden, compared to 43% of schools with fewer students on subsidized meals ($p<0.05$).

Table 10: Instructors in school garden (n=172)

School teachers	84%
Paid school staff (e.g., garden coordinator, afterschool staff, etc.)	31%
Other community volunteers	14%
Older students (buddy teaching)	12%
Parent volunteers	10%
Master gardeners	5%
Paid non-school staff (e.g., Americorps, non-profit, etc.)	3%
College interns/volunteers	2%
Other (Please specify.)	4%

Grade level(s) that participated in garden programming for student learning at schools was also reported (Table 11). High school students were the most common participants, with about three-quarters of sites reporting 10th grade (75%), 11th grade (73%), and 12th grade (72%) participation. Slightly fewer 9th graders were involved (70%). The lowest participation was Pre-K (12%). There were many significant differences by grade level. In urban schools, participation was higher in the lower grades – Pre-K through 5th grade. This flipped starting in 8th grade, with the highest participation in rural schools. A similar pattern was found by type of school: before 7th grade, the greatest participation was in private schools. For schools with mostly low-income students, participation was greater in 2nd grade, and lower in 10th and 12th grades.

Table 11: Garden programming participation (n=172)

	Overall	Urban	Rural	Private	Public	FR <50%	FR 50%+
Pre-K	12%	28%	10%	38%	10%		
Kindergarten	29%	67%	25%				
First	27%	61%	23%	62%	25%		
Second	27%	61%	23%	62%	24%	22%	41%
Third	29%	61%	25%	69%	26%		
Fourth	31%	61%	27%	62%	28%		
Fifth	32%	61%	29%				
Sixth	25%			54%	23%		
Seventh	43%						
Eighth	50%	22%	53%				
Ninth	70%	17%	77%	31%	74%		
Tenth	75%	28%	81%			79%	63%
Eleventh	73%	22%	79%	23%	77%		
Twelfth	72%	22%	78%	23%	76%	75%	59%

$p<0.05$, $p<0.01$, $p<0.001$

Respondents were asked to identify core and non-core subjects that were taught using the school gardens. For the core subjects, 99% respondents reported science was taught using the school gardens, followed by math (40%), and split equally between history/social studies (8%) and English-language arts (8%). Urban (29%) and private (33%) schools were more likely than rural (5%) and public (5%) schools to teach history/social studies in the garden.

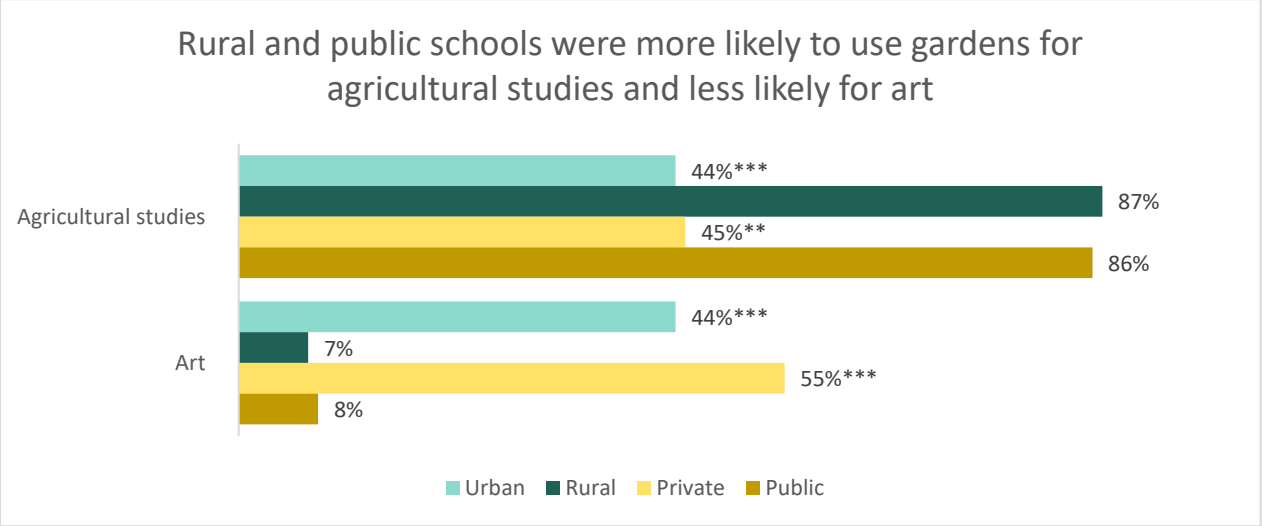
For the non-core subjects, most respondents reported agricultural studies was taught using the school gardens (83%), followed by health/nutrition (35%). A quarter reported using the school gardens for service learning/community service, and the remaining split between different subjects (Table 12).

Table 12: Non-core subjects (n=164)

Agricultural studies	83%
Health/Nutrition	35%
Service Learning/Community Service	25%
Family and Consumer Sciences/Culinary Arts	23%
Environmental studies	21%
Business/Entrepreneurship	16%
Art	11%
Special education	11%
Foreign language	5%
Physical education	3%
Computer technology	2%
Other (Please specify.)	2%

The garden was used differently for agricultural studies and art classes, depending on location and type of school (Figure 6). Urban schools were less likely than rural schools to use their gardens for agricultural studies, and more likely to use it for art, as well as environmental studies (44% vs. 19%, $p<0.05$), and health/nutrition (63% vs. 32%, p,0.05). Private schools followed the same pattern as urban schools. Schools with more low-income students were twice as likely as those with fewer low-income students to use the garden for environmental studies (32% vs. 16%, $p<0.05$). Agricultural educators were less likely than other respondents to say their gardens were used for service learning (4% vs. 29%, $p<0.01$) or for special education (0% vs. 13%, $p<0.05$).

Figure 6: Non-core subject differences (n=164)



When asked what educational resources and materials were used to teach in the school garden, almost all respondents (82%) reported using self-created lessons plans and nearly half (46%) reported using websites (Table 13). Trade books (7%) were the least being used to teach in the school garden, while the remaining was split between different resources and materials.

Table 13: Educational resources and materials (n=162)

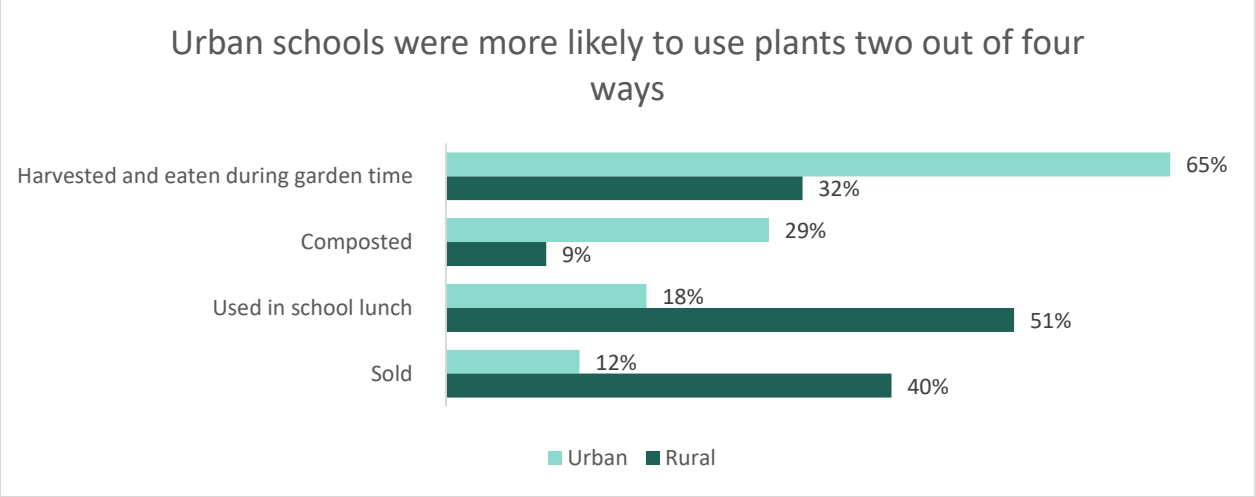
Self-created lesson plans	82%
Websites	46%
Resources received at workshops or seminars	38%
Textbooks	33%
Garden-based curriculum (e.g., Junior Master Gardeners; Learn, Grow, Eat, Go; etc.)	22%
Nature-based curriculum (e.g., Project Learning Tree, Project Wild, etc.)	14%
Trade books (fiction or non-fiction literature)	7%
Other- Please specify.	9%

School Garden Production

Respondents were asked what was done with plants or food grown in the garden. Nearly half reported the plants were used in school lunch (47%), while over a third reported the plants were donated (38%), sold (37%), harvested and eaten during garden time (35%), harvested and eaten during other school time activities (e.g., classroom testing and cafeteria testing) (35%), and/or used for academic study (34%). 12% reported the plants were composted, and 4% reported the plants were harvested and eaten during out-of school activities (e.g., PTO meetings and school board meetings).

There were several group differences in how garden products were used. Figure 7 shows differences by locale, where urban schools were twice as likely as rural schools to harvest and eat while in the garden, and were three times as likely to compost. Rural schools were more than twice as likely to use the results in their school lunches, as well as sell plants and food products. Schools with 50% or more students qualifying for school lunch were also more likely to harvest and eat during garden time (47% vs. 30%, $p<0.05$). Seven out of 10 agricultural educators (FFA) said their garden supplied food for school lunches, compared to 43% of non-FFA respondents ($p<0.01$), but were half as likely to say their food was donated (19% vs. 42%, $p<0.05$).

Figure 7: Use of plants or food from garden (n=165)



A Follow-up question was asked for those who reported selling the plants or food grown in the garden, and out of 60 respondents, 42% reported their businesses were associated with a student business venture, with 13% identifying it as associated with FFA.

When asked if the respondents would define their school garden as part of farm to school programming (farm to school programs connect schools with local farms with the objectives of serving healthy meals in school cafeterias, improving student nutrition, providing health and nutrition education, and supporting Nebraska's farmers.), over a half (64%) identified their garden as not a part of farm to school, 14% identified as Farm to School, while 12% had never heard of farm to school until the time the survey was taken, and 10% did not know whether their school garden was a part of a farm to school program.

School Garden Development

Twenty-three respondents reported having paid staff who managed the garden or taught in the garden, which was separate from classroom teachers. The garden support staff worked on average 4 hours per week during the academic year, ranging from 1 to 10 hours per week. Over a third reported paying the garden support staff between $11-15/hour (44%) and $6-10/hour (38%). Nineteen percent reported their garden support staff's wage was between $16-20/hour and 1% reported $35/hour.

Over half (57%) of sites reported their school educator had not received any garden-based professional development in the past three years. Overall, nearly a quarter reported that the school educators attended conferences or seminars (24%), however, group analyses showed these were all rural respondents (28% vs. 0% urban, $p<0.01$). Off-site workshops (22%), on-site school-sponsored workshops (5%), and other types of professional development (5%) were the least common.

Respondents identified school garden topics they would like to see offered in their area. Most of the respondents chose garden-based instructions (81%) as the most desired topic, followed by gardening skills (48%) and outdoor classroom management (48%), and other topics (8%). Gardening skills were desired more by respondents at urban schools (71%) than rural (45%, $p<0.05$).

Only 13% out of 164 respondents said their school conducted program evaluation or assessment for their school garden program in the past five years. Nearly a quarter of schools with more low-income students (24%) had conducted an assessment in the past five years, compared to only 9% of schools with fewer low income students ($p<0.05$).

Eighty-six sites shared their annual school garden budget (including staff and materials) from last year, which ranged from $0 to $100,000, with an average of $3,569. On average, over half of the budget (62%) was spent on garden materials (e.g., tools, plants, hardscaping, etc.), instruction staff (14%), maintenance (4%), and professional development (e.g., workshop, curriculum, etc.) (1%).

The survey also asked about sources of funding for the school garden program during the last academic year. Almost two-thirds of respondents reported receiving school or district funds (63%), but this was more common in rural (69%) and public schools (67%) compared to urban (21%) and private (17%) schools ($p<0.001$). More than a third received grants (35%), and similar numbers received funding from community/business donations (20%), individual donations (18%), and other sources (19%). Half of private schools reported receiving individual donations versus 15% of public schools ($p<0.01$). Parent teacher organization funds were the least common (3%) but were much more common in urban schools than rural (16% vs. 1%, $p<0.05$).

Over a third of those surveyed reported collaborating in the past academic year with non-profit organizations (40%) and local businesses (38%), more than a quarter reported having after school programs (27%), and other supports (27%). Collaborations with local farms (12%) and university or

college partnerships (12%) were the least reported, and urban schools were more common for urban schools versus rural schools (29% vs. 9%, $p<0.05$).

Respondents were asked to indicate between several personnel the role of the person who started or continued to manage their school gardens during summer (weeding, watering, etc.) and fall or spring (planning, prep, planting, etc.) (Table 14). Classroom teachers and students were most involved in starting the garden, and in garden management year round. "Other" participants included after school program staff, parent-teacher organizations, and miscellaneous other individuals.

Table 14: Roles in starting or managing school gardens (n=152)

	Starting the garden	Summer management	Fall or Spring management
Classroom teachers	71%	52%	68%
Students	71%	57%	75%
Custodial or grounds staff	21%	22%	15%
Administrators	18%	8%	6%
Parent volunteers	15%	16%	13%
Other volunteers	14%	15%	14%
Master Gardeners	10%	6%	7%
Paid garden staff	5%	2%	7%
Paid non-school support organization staff	3%	3%	3%
College interns	1%	1%	1%
Other (Please specify.)	7%	6%	7%

School Garden Program Attitudes

Respondents were asked to identify any positive observations made in their school garden participants (Table 15). Nearly half reported increased leadership skills (47%), and this was higher in urban schools (68%) than rural schools (41%, $p<0.05$). Overall, about a third of respondents (34%) said participating was associated with increased self-confidence. Over half of agricultural educators (52%) gave this answer, versus 31% of other respondents ($p<0.05$). Other observations included scientific discovery, new food discovery, calm. One respondent wrote: "*Improved call to be stewards of creation*."

Table 15: Positive Observations (n=148)

Increased leadership skills	47%
Increased environmental attitudes	45%
Sense of volunteerism	43%
Increased social skills/behaviors	41%
Improved attitude toward school	39%
Increased self-confidence	34%
Improvements in health and nutrition	32%
Increased community spirit	31%
Academic gains	29%
Improved motor skills	8%
Other (Please specify.)	11%

Negative observations were also collected from 29 respondents. The most common difficulty was keeping students and staff interested. Other common responses included feeling frustrated: "*Amount of time to make this productive has frustrated some teachers. Don't like the time we spend on it with little*

results." Some sites noted vandalization by students and non-participants and carelessness students or not paying attention when working in the garden.

Respondents rated the importance of potential benefits in their school gardens (Table 16). Over a third rated the following as important: Increasing awareness of careers (38%) and environmental attitudes (36%), and improving decision-making skills (35%), attitude toward school (34%), and health and nutrition (34%).Growing food for school cafeteria (1%) and community distribution (19%) were rated as the least important.

Table 16: Potential benefits in school gardens (n=150)

	Extremely or Very Important	Moderately important	Slightly or Not important
Increasing awareness of careers	38%	19%	3%
Increasing environmental attitudes	36%	22%	3%
Improving decision-making skills	35%	21%	5%
Improving attitude toward school	34%	25%	3%
Improving health and nutrition	34%	20%	6%
Improving social skills	33%	23%	6%
Learning opportunities for core subjects	32%	27%	5%
Improving social/emotional health	31%	28%	5%
Trying new foods	30%	25%	8%
Increasing fruit and vegetable intake	30%	26%	7%
Improving community engagement	27%	29%	9%
Beautifying school grounds	25%	29%	10%
Growing food for the school cafeteria	19%	28%	16%
Growing food for community distribution	19%	23%	19%

Group differences were found for five of the fourteen benefits listed, with no commonalities across groups. Respondents at private schools rated increasing environmental attitudes as more important (between very and extremely important) than those at public schools (very important, $p<0.001$). Agriculturel educators rated improving attitudes towards school as less important than respondents in other roles (between moderately important and very important vs. very important, $p<0.05$), as well as improving community engagement (rated as less than moderately important by FFA folks versus moderately to very important for non-FFA folks, $p<0.05$), and beautifying school grounds (moderately important to FFA educators and very important to everyone else, $p<0.01$). Growing food for the cafeteria was moderately important to rural respondents and slightly important to urban respondents ($p<0.05$).

Respondents also rated the importance of potential challenges in their school gardens (Table 17). Over a third rated supporting student learning and engagement (42%) and managing an aesthetically pleasing garden space (34%) as important for potential challenges in school garden, while minimizing noise or other disruptions was rated the least important (16%). Continued funding was more important to those with more low-income students (very important) compared to fewer low-income students (moderately to very important, $p<0.05$), and minimizing noise/disruptions was more important in public schools (moderately important) than in private schools (slightly important, $p<0.05$).

Table 17: Potential challenges in school gardens (n=150)

	Extremely or Very Important	Moderately important	Slightly or Not important
Supporting student learning and engagement	42%	12%	2%
Managing an aesthetically pleasing garden space	34%	18%	7%
Maintaining a good relationship with groundskeeper(s)	32%	21%	7%
Engaging community members	29%	27%	7%
Finding and securing continued garden funding	28%	26%	8%
Minimizing risk and liability	28%	24%	10%
Minimizing noise or other disruptions	16%	33%	18%

Respondents were also asked to rate the importance of some factors/resources that would be in supporting the school garden as an academic instructional tool (Table 18). Over a third rated encouragement from administrators to use the garden as an instructional tool (37%), teacher training in garden-based learning instruction (37%), and gardening skills (34%) as important factors in supporting school garden.

Table 18: Factors/resources in supporting school garden (n=150)

	Important	Moderately important	Not important
Encouragement from administrators to use the garden as an instructional tool	37%	19%	19%
Teacher training in garden-based learning instruction	37%	17%	17%
Teacher training in gardening skills	34%	21%	21%
Teacher training in outdoor classroom management	33%	23%	23%
Lesson planning time	31%	26%	26%
Access to standards-aligned curriculum and materials	29%	27%	27%
Other (Please specify.)	21%	26%	26%

Overall

The use of school gardens varies a great deal based on school characteristics – primarily locale and type of school. Although there were many similarities between urban and private schools, and rural and public schools, only 35% of the respondents from private schools were in urban areas, representing just 5% of all respondents. These differences (locale and type) are associated with differences in garden structures, use of products, funding, and which students use the gardens, implying dissimilar garden experiences for students across the state. There are also some key differences based on the number of low-income students that appear to lead to unequal access/resources. There were some differences based on whether the respondent was an agricultural educator, but few were about structural differences. Notable exceptions were the higher use of garden produce in school lunches, and lower use of the gardens for service learning and special education.

Appendix A: School Garden Survey

Nebraska School Gardens Needs Assessment Survey Flow

Q1 **Nebraska School Gardens Needs Assessment**
IRB Approval #: 20181018719EX
Purpose of Research: The purpose of this research is to gather information about Nebraska school gardens and other growing spaces in order to support creation, management, and use of these spaces. Information gained from this survey will be used to guide garden-based curriculum development and provide Nebraska school gardens with additional support. You are invited to participate in this research if you are 19 years of age, live in Nebraska, and have knowledge of school-affiliated garden spaces in your area. **Specific Procedures to be Used**: You will be asked to answer closed- and open-ended questions about school-affiliated garden spaces in your area. You will be asked to provide limited demographic information. Providing this information is entirely voluntary. **Duration of Participation**: This survey will take approximately 5-20 minutes to complete. This length may be shorter or longer depending on your location, experiences, and input. **Risks**: There are no known risks or discomfort associated with this research. **Benefits**: By participating in this research, you will have the opportunity to share your experience and knowledge of your local school-affiliated garden spaces. Findings from this study will be shared with educators, administrators, curriculum developers, government agencies, and non-profit organizations that support school garden efforts in Nebraska, to inform development of garden-based resources and tools. **Incentive**: No monetary incentive will be offered for participating in this study. **Freedom to Withdraw**: Participation in this study is voluntary. You can refuse to participate or withdraw at any time without harming your relationship with the researchers or the University of Nebraska-Lincoln, or in any other way receive a penalty or loss of benefits to which you are otherwise entitled. **Confidentiality**: This survey was developed and implemented using Qualtrics Survey Software. Their privacy policy can be found at http://www.qualtrics.com/privacy-statement/. No information identifying you to the research results will be published. Your responses will be kept confidential on secure server with password protection. Responses will be destroyed five (5) years after completion of the study. Results from this study may be published in scientific journals or presented at scientific meetings but identifying information of participants will not appear in any written report or presentation. **Opportunity to Ask Questions**: You may ask any questions concerning this research by contacting Erin Ingram (402-318-2319 or eingram3@unl.edu) or Jenny Keshwani (402-472-9614 or jkeshwani@unl.edu). If you would like to speak to someone else, please call the Research Compliance Services Office at (402) 472-6965 or irb@unl.edu.

Q51 **Consent**: You are voluntarily making a decision whether or not to participate in this research study. By clicking on the "I Agree" button below, you agree that you are 19 years of age or older and consent to participate. For future reference, you should print or save a copy of this consent form for your records.

- ○ I Agree (1)
- ○ I Do Not Agree (2)

Skip To: End of Survey If Consent: You are voluntarily making a decision whether or not to participate in this research stu... = I Do Not Agree

End of Block: Introduction and Survey Purpose

Start of Block: Participant and school demographic information

Q2 Contact information

- ○ Your name (1) _____
- ○ Email address (2) _____

Q3 Which of the following best describes your role?

- ○ Teacher (1)
- ○ School administrator (2)
- ○ Other school staff (3)
- ○ Parent volunteer (4)
- ○ Community volunteer (5)
- ○ Non-profit support organization (6)
- ○ Other support organization (Please specify.) (7) _____

Q4 School information

- ○ School name (1) _____
- ○ School address (2) _____
- ○ School city (3) _____
- ○ School zip code (4) _____
- ○ County (5) _____
- ○ School district (6) _____
- ○ School enrollment (best estimate) (7) _____

Q5 School type

- ○ Public (1)
- ○ Private (2)

Q50 Can we add your information to our Nebraska school garden database?
Contact information in the database will be used to disseminate curriculum resources and information about available support for school gardens in Nebraska. If you wish to withdraw from the registry at any time, you may submit your request via email to eingram3@unl.edu.

- ○ Yes, I **would** like to add my information to the school gardens database. (1)
- ○ No, I **would not** like to add my information to the school gardens database. (2)

End of Block: Participant and school demographic information

Start of Block: School garden description

Q6 Has your school ever had a garden or other growing space (greenhouse, community garden, aquaponics, tower gardens, etc.)?

- ○ Yes (1)
- ○ No (2)

Display This Question:
If Has your school ever had a garden or other growing space (greenhouse, community garden, aquaponic... = No

Q8 Please choose all applicable reasons that best describe why your school does not have access to a school garden or other growing space.

- ☐ Lack of financial support (1)
- ☐ Lack of gardening expertise (2)
- ☐ Lack of staff (3)
- ☐ Lack of volunteers (4)
- ☐ Lack of ability to care for garden during summer months (5)
- ☐ Not enough interest in having a garden (6)
- ☐ Lack of instructional materials (7)
- ☐ Inadequate space on school grounds (8)
- ☐ Lack of access to water (9)
- ☐ Increased risk of vandalism or liability (10)
- ☐ Other (Please specify.) (11) _____

Display This Question:
If Has your school ever had a garden or other growing space (greenhouse, community garden, aquaponic... = Yes

Q9 Does your school currently have a garden or other growing space (greenhouse, community garden, aquaponics, tower gardens, etc.)?

- ○ Yes (1)
- ○ No (2)

Display This Question:
If Has your school ever had a garden or other growing space (greenhouse, community garden, aquaponic... = No
Or If
Has your school ever had a garden or other growing space (greenhouse, community garden, aquaponic... = Yes
And Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = No

Q7 How interested are you in gaining access to a school garden or other growing spaces?

- ○ Extremely interested (1)
- ○ Very interested (2)
- ○ Moderately interested (3)
- ○ Slightly interested (4)
- ○ Not at all interested (5)

Display This Question:
If Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = No

Q10 Can you provide a reason for why the garden or growing space is no longer utilized? (Select all that apply.)

- ☐ Loss of garden leader(s) (1)
- ☐ Loss of volunteers (2)
- ☐ Loss of access to the growing space (e.g. school renovations, parking lot, etc.) (3)
- ☐ Lack of funding for continued garden management (4)
- ☐ Loss of interest (5)
- ☐ Lack of gardening expertise (6)
- ☐ Issues with plant health (e.g. insect pests, disease, poor soil, etc.) (7)
- ☐ Issue with groundskeeper(s) (8)
- ☐ Unknown reason(s) (9)
- ☐ Other (Please elaborate.) (10) _____

Display This Question:
If Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = Yes

Q11 How long has the school garden or other growing space been operating? (when was it first created)

- ○ < 1 year (1)
- ○ 1-3 years (2)
- ○ 4-6 years (3)
- ○ 7-9 years (4)
- ○ > 10 years (5)
- ○ I don't know (6)

Display This Question:
If Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = Yes

Q12 Did your school receive funding to support creating/starting your growing space? (Please do not include continuing funds for management or staff.)

- ○ Yes (Please specify funding amounts and/or funding sources if possible.) (1) _____
- ○ No (2)

Display This Question:
If Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = Yes

Q13 How would you describe your school garden? (Select all that apply.)

- ☐ In planters/pots/containers (1)
- ☐ In raised beds in one or more areas (2)
- ☐ In the ground in one or more areas (3)
- ☐ Greenhouse (4)
- ☐ Hoop house (5)
- ☐ Off school campus (Please specify location.) (6) _____
- ☐ Other (Please specify.) (7) _____

Display This Question:
If Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = Yes

Q14 What types of plants exist/will be grown in your school garden this academic year? (Select all that apply.)

- ☐ Vegetables (1)
- ☐ Herbs (2)
- ☐ Fruits (3)
- ☐ Nuts (4)
- ☐ Nebraska native plants (5)
- ☐ Ornamentals (any non-edible plants) (6)
- ☐ Other (Please specify.) (7) _____

Display This Question:
If Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = Yes

Q15 Which of the following features does your school garden have? (Select all that apply.)

- ☐ Compost area (1)
- ☐ Worm bin (2)
- ☐ Man-made wildlife habitat (e.g. bird bath, bird feeder, bird or bat houses, bee nesting block, etc.) (3)
- ☐ Pond or water feature (4)
- ☐ Tool shed/storage area (5)
- ☐ Weather station (6)
- ☐ Food prep/kitchen area (7)
- ☐ Sinks (8)
- ☐ Outdoor teaching area (e.g. benches, tables, etc.) (9)
- ☐ Interpretive signage (10)
- ☐ Rain barrel (11)
- ☐ Solar panels (12)

- [ ] Automated irrigation (13)
- [ ] Greenhouse (14)
- [ ] Domestic animals (e.g. chickens, ducks, rabbits, etc.) (15)

End of Block: School garden description

Start of Block: Garden-based learning

Display This Question:
If Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = Yes

Q16 Is the school garden or other growing space used to support student learning?

- ○ Yes (1)
- ○ No (2)

Display This Question:
If Is the school garden or other growing space used to support student learning? = No

Q17 Which, if any, of the following are barriers to student learning in the garden? (Select all that apply.)

- [ ] Lack of garden-based instructional resources (1)
- [ ] Lack of standards-aligned learning in the garden (2)
- [ ] Lack of professional development or training opportunities in garden-based learning (3)
- [ ] Lack of instructional time (4)
- [ ] Concern that students may harm or disturb garden plants (5)
- [ ] Concern about student behavior in the garden (6)
- [ ] Other (Please specify.) (7) _____

Display This Question:
If Is the school garden or other growing space used to support student learning? = Yes

Q18 When is the garden used to support student learning? (Select all that apply.)

- ☐ During class instruction time (1)
- ☐ During recess (2)
- ☐ After school (3)
- ☐ Before school (4)
- ☐ Summer program/camp (5)
- ☐ Non-school community uses (6)
- ☐ Other (Please specify.) (7) _____

Display This Question:
If Is the school garden or other growing space used to support student learning? = Yes

Q19 Who teaches students in the garden? (Select all that apply.)

- ☐ Paid school staff (e.g. garden coordinator, afterschool staff, etc.) (1)
- ☐ Paid non-school staff (e.g. Americorps, non-profit, etc.) (2)
- ☐ School teachers (3)
- ☐ Older students (buddy teaching) (4)
- ☐ Master gardeners (5)
- ☐ Parent volunteers (6)
- ☐ College interns/volunteers (7)
- ☐ Other community volunteers (8)
- ☐ Other (Please specify.) (9) _____

Display This Question:
If Is the school garden or other growing space used to support student learning? = Yes

Q20 Which grade level(s) participate in garden programming for student learning at your school? (Select all that apply.)

- ☐ Pre-K (1)

- [ ] Kindergarten (2)
- [ ] First (3)
- [ ] Second (4)
- [ ] Third (5)
- [ ] Fourth (6)
- [ ] Fifth (7)
- [ ] Sixth (8)
- [ ] Seventh (9)
- [ ] Eighth (10)
- [ ] Ninth (11)
- [ ] Tenth (12)
- [ ] Eleventh (13)
- [ ] Twelfth (14)

Display This Question:
If Is the school garden or other growing space used to support student learning? = Yes
And When is the garden used to support student learning? (Select all that apply.) = During class instruction time

Q21 What percentage of your school's students do you estimate visit the garden for formal classroom instruction per academic year?

- ○ 10% (1)
- ○ 20% (2)
- ○ 30% (3)
- ○ 40% (4)
- ○ 50% (5)
- ○ 60% (6)
- ○ 70% (7)
- ○ 80% (8)

○ 90% (9)

○ 100% (10)

Display This Question:
If Is the school garden or other growing space used to support student learning? = Yes

Q22 Which of the following core subjects are taught using the school garden? (Select all that apply.)

☐ Math (1)

☐ Science (2)

☐ History/Social Studies (3)

☐ English-Language Arts (4)

Display This Question:
If Is the school garden or other growing space used to support student learning? = Yes

Q23 Which of the following non-core subjects are taught using the garden? (Select all that apply.)

☐ Agricultural studies (1)

☐ Art (2)

☐ Business/Entrepreneurship (3)

☐ Computer technology (4)

☐ Environmental studies (5)

☐ Foreign language (6)

☐ Health/Nutrition (7)

☐ Family and Consumer Sciences/Culinary Arts (8)

☐ Physical education (9)

☐ Special education (10)

☐ Service Learning/Community Service (11)

☐ Other (Please specify.) (12)

Display This Question:
If Is the school garden or other growing space used to support student learning? = Yes

Q24 Which educational resources and materials are used to teach in the school garden?

- ☐ Textbooks (1)
- ☐ Trade books (fiction or non-fiction literature) (2)
- ☐ Garden-based curriculum (Please specify. e.g. Junior Master Gardeners; Learn, Grow, Eat, Go; etc.) (3)
- ☐ Nature-based curriculum (Please specify. e.g. Project Learning Tree, Project Wild, etc.) (4)
- ☐ Self-created lesson plans (5)
- ☐ Resources received at workshops or seminars (6)
- ☐ Websites (7)
- ☐ Other- Please specify. (8) _____

End of Block: Garden-based learning

Start of Block: School garden production

Display This Question:
If Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = Yes

Q25 What is done with plants or food grown in the garden? (Select all that apply.)

- ☐ Used in school lunch (1)
- ☐ Used for academic study (2)
- ☐ Sold (3)
- ☐ Donated (4)
- ☐ Composted (5)
- ☐ Harvested and eaten during garden time (6)
- ☐ Harvested and eaten during other school time activities (e.g. classroom tastings, cafeteria tastings) (7)
- ☐ Harvested and eaten during activities out-of-school activities (e.g. PTO meetings, school board meetings, etc.) (8)

Display This Question:
If What is done with plants or food grown in the garden? (Select all that apply.) = Sold

Q26 When plants or food from the school garden are sold, is this associated with any student business venture?

- Yes (Please elaborate.) (1) _____
- No (2)

Display This Question:
If Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = Yes

Q27 Would you define your school garden as part of Farm to School programming? (Farm to School programs connect schools with local farms with the objectives of serving healthy meals in school cafeterias, improving student nutrition, providing health and nutrition education, and supporting Nebraska's farmers.)

- Yes (1)
- No (2)
- I don't know (3)
- I hadn't heard of Farm to School until now (4)

End of Block: School garden production

Start of Block: School garden program development

Display This Question:
If Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = Yes

Q28 Are there any paid staff that manage the garden or teach in the garden outside of classroom teachers? Select yes if there are any (school or non-school) support staff that receive any types of funds for garden programming.

- Yes (1)
- No (2)

Display This Question:
If Are there any paid staff that manage the garden or teach in the garden outside of classroom teach... = Yes

Q29 What is the hourly pay rate range for paid (non-classroom teacher) garden support staff?
(If you have more than one paid staff, list the highest paid staff. If garden staff is paid an annual stipend, please estimate hours worked per year to come up with an hourly rate.)

- $1-5/hour (1)
- $6-10/hour (2)
- $11-15/hour (3)
- $16-20/hour (4)
- $21-25/hour (5)
- $26-30/hour (6)
- $30-35/hour (7)
- > $35/hour (8)

Display This Question:
If Are there any paid staff that manage the garden or teach in the garden outside of classroom teach... = Yes

Q30 During the academic year, on average, how many hours per week do paid staff (non-classroom teachers) work/teach in the garden? (For multiple staff, please list separately.)

_____
_____
_____
_____
_____

Display This Question:
If Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = Yes

Q31 In the past three years, what types of garden-based professional development have educators at your school received? (Select all that apply.)

- ☐ None (1)
- ☐ On-site school-sponsored workshop (2)
- ☐ Off-site workshop (3)
- ☐ Conferences or seminars (4)
- ☐ Other (Please specify.) (5) _____

Display This Question:
If Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = Yes

Q32 Which of the following school garden topics would you attend or like to see offered in your area? (Select all that apply.)

- ☐ Gardening skills (1)
- ☐ Outdoor classroom management (2)
- ☐ Garden-based instruction (3)
- ☐ Other (Please specify topic.) (4) _____

Display This Question:
If Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = Yes

Q33 Has your school conducted program evaluation or assessment for your school garden program in the past five years?

- ○ Yes (1)
- ○ No (2)

Display This Question:
If Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = Yes

Q34 During the last academic year, what was your total annual school garden budget (including staff and materials)?
_____

Display This Question:
If Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = Yes

Q35 During the last academic year, how was your funding divided?
Garden materials (e.g. tools, plants, hardscaping, etc.) : _____ (1)
Professional development (e.g. workshops, curriculum, etc.) : _____ (2)
Maintenance staff : _____ (3)
Instruction staff : _____ (4)
Other (Please specify resources.) : _____ (5)
Total : _____

Display This Question:
If Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = Yes

Q36 During the last academic year, what were the funding sources for your school garden program? (Select all that apply.)

- ☐ School or district funds (1)
- ☐ Individual donations (2)
- ☐ Community/business donations (3)
- ☐ Grants (4)
- ☐ PTA/PTO funds (5)
- ☐ Other (Please specify.) (6) _____

Display This Question:
If Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = Yes

Q37 During the last academic year, with which of the following support organizations did your school garden program partner or collaborate? (Select all that apply.)

- ☐ Non-profit organizations (1)
- ☐ After school programs (2)
- ☐ University or college partnerships (3)
- ☐ Local businesses (4)
- ☐ Local farms (5)
- ☐ Other (Please specify.) (6) _____

Display This Question:
If Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = Yes

Q38 Please indicate which of the following have had a role in starting or continuing to manage in your school garden?

	Starting the garden (1)	Summer management (weeding, watering, etc.) (2)	Fall or Spring management (planning, prep, planting, etc.) (3)
Master Gardeners (1)	☐	☐	☐
Parent volunteers (2)	☐	☐	☐
College interns (3)	☐	☐	☐
Other volunteers (4)	☐	☐	☐
Paid garden staff (5)	☐	☐	☐
Paid non-school support organization staff (6)	☐	☐	☐
Classroom teachers (7)	☐	☐	☐
Students (8)	☐	☐	☐
Custodial or grounds staff (9)	☐	☐	☐
Administrators (10)	☐	☐	☐
Other (Please specify.) (11)	☐	☐	☐

End of Block: School garden program development

Start of Block: School garden program attitudes

Display This Question:

If Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = Yes

Q39 Which of the following positive observations have you made in your school garden participants? (Select all that apply.)

- ☐ Increased environmental attitudes (1)
- ☐ Increased community spirit (2)
- ☐ Increased self-confidence (3)
- ☐ Increased social skills/behaviors (4)
- ☐ Increased leadership skills (5)
- ☐ Improved attitude toward school (6)
- ☐ Sense of volunteerism (7)
- ☐ Improvements in health and nutrition (8)
- ☐ Improved motor skills (9)
- ☐ Academic gains (10)
- ☐ Other (Please specify.) (11) _____

Display This Question:
If Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = Yes

Q40 Describe any negative observations that you have seen in your school garden participants.
_____

Display This Question:
If Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = Yes

Q41 Please rate the importance of the following **potential benefits** in your school garden.

	Extremely important (1)	Very important (2)	Moderately important (3)	Slightly important (4)	Not at all important (5)
Learning opportunities for core subjects (math, science, language arts, etc.) (1)	○	○	○	○	○
Increasing environmental attitudes (2)	○	○	○	○	○
Improving attitude toward school (3)	○	○	○	○	○
Increasing fruit and vegetable intake (4)	○	○	○	○	○
Trying new foods (5)	○	○	○	○	○
Improving social/emotional health (6)	○	○	○	○	○
Improving social skills (7)	○	○	○	○	○
Improving decision-making skills (8)	○	○	○	○	○
Improving health and nutrition (9)	○	○	○	○	○
Increasing awareness of careers (agriculture, horticulture, culinary arts, food service, etc.) (10)	○	○	○	○	○
Growing food for the school cafeteria (11)	○	○	○	○	○
Growing food for community distribution (e.g. food pantry) (12)	○	○	○	○	○
Improving community engagement (13)	○	○	○	○	○
Beautifying school grounds (14)	○	○	○	○	○

Display This Question:
If Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = Yes

Q42 Please rate the importance of the following **potential challenges** in your school garden.

	Extremely important (1)	Very important (2)	Moderately important (3)	Slightly important (4)	Not at all important (5)
Managing an aesthetically pleasing garden space (1)	○	○	○	○	○
Finding and securing continued garden funding (2)	○	○	○	○	○
Supporting student learning and engagement (3)	○	○	○	○	○
Maintaining a good relationship with groundskeeper(s) (4)	○	○	○	○	○
Engaging community members (5)	○	○	○	○	○
Minimizing noise or other disruptions (6)	○	○	○	○	○
Minimizing risk and liability (7)	○	○	○	○	○

Display This Question:
If Does your school currently have a garden or other growing space (greenhouse, community garden, aq... = Yes

Q43 Please rate how important each of the following factors/resources would be in supporting the school garden as an academic instructional tool.

	Extremely important (1)	Very important (2)	Moderately important (3)	Slightly important (4)	Not at all important (5)
Access to standards-aligned curriculum and materials (1)	○	○	○	○	○
Teacher training in gardening skills (2)	○	○	○	○	○
Teacher training in garden-based learning instruction (3)	○	○	○	○	○
Teacher training in outdoor classroom management (4)	○	○	○	○	○
Lesson planning time (5)	○	○	○	○	○
Encouragement from administrators to use the garden as an instructional tool (6)	○	○	○	○	○
Other (Please specify.) (7)	○	○	○	○	○

End of Block: School garden program attitudes

Appendix B: Tables

DEMOGRAPHIC

Q3. Which of the following best describes your role?	Freq	%
Teacher	111	31%
School administrator	175	48%
Other school staff	23	6%
Parent volunteer	0	0%
Community volunteer	0	0%
Non-profit support organization	3	1%
Other support organization (Please specify.)	49	14%
Total	361	100%

Q4_7. School information - School enrollment (best estimate)	
Total Overall Students	165839
Mean	459
Min	15
Max	5732
Total Responses	361

Q5. School type	Freq	%
Private	55	15%
Public	306	85%
Total	361	100%

Q5_0. Can we add your information to our Nebraska school garden database?	Freq	%
Yes	252	70%
No	109	30%
Total	361	100%

Free/Reduced Lunch_%	
Average	43%
Min	2%
Max	98%
Total Responses	325

Low Grade	Freq	%
PK	246	68%
K	1	0.3%
1	1	0.3%
3	5	1%
4	1	0.3%

5	9	3%
6	16	4%
7	47	13%
9	35	10%
Total	361	100%

High Grade	Freq	%
PK	5	1%
KG	1	0.3%
2	3	1%
4	8	2%
5	32	9%
6	37	10%
8	50	14%
12	225	62%
Total	361	99%

Locale		
City: Large	51	14%
City: Small	4	1%
Rural: Distant	67	19%
Rural: Fringe	18	5%
Rural: Remote	136	38%
Suburb: Large	16	4%
Town: Distant	27	7%
Town: Fringe	6	2%
Town: Remote	36	10%
Total	361	100%

END OF DEMOGRAPHIC

SCHOOL GARDEN DESCRIPTION

Q6. Has your school ever had a garden or other growing space (greenhouse, community garden, aquaponics, tower gardens, etc.)?

	Freq	%
Yes	140	39%
No	219	61%
	359	100%

If Q6. = NO

Q8. Please choose all applicable reasons that best describe why your school does not have access to a school garden or other growing space.

	Freq	% (Out of 138 Responses)
Lack of financial support	65	47%

Lack of gardening expertise	29	21%
Lack of staff	46	33%
Lack of volunteers	43	31%
Lack of ability to care for garden during summer months	66	48%
Not enough interest in having a garden	58	42%
Lack of instructional materials	31	22%
Inadequate space on school grounds	47	34%
Lack of access to water	8	1%
Increased risk of vandalism or liability	10	7%
Other (Please specify.)	20	14%

Q7. How interested are you in gaining access to a school garden or other growing spaces?	Freq	% (Out of 138 Responses)
	17	12%
Extremely interested	29	21%
Very interested	35	25%
Moderately interested	27	20%
Slightly interested	30	22%
Not at all interested		

If Q6. = YES

Q9. Does your school <u>currently</u> have a garden or other growing space (greenhouse, community garden, aquaponics, tower gardens, etc.)?

	Freq	% (Out of 219 Responses)
Yes	185	85%
No	34	15%

If Q6. = YES and Q9. = NO

Q7. How interested are you in gaining access to a school garden or other growing spaces?	Freq	% (Out of 34 Responses)
Extremely interested	1	3%
Very interested	8	23%
Moderately interested	13	38%
Slightly interested	7	21%
Not at all interested	5	15%

If Q9. = NO

Q10. Can you provide a reason for why the garden or growing space is no longer utilized? (Select all that apply.)

	Freq	% (Out of 34 Responses)
Loss of garden leader(s)	14	41%
Loss of volunteers	14	41%
Loss of access to the growing space (e.g. school renovations, parking lot, etc.)	10	29%

Lack of funding for continued garden management	7	21%
Loss of interest	13	38%
Lack of gardening expertise	6	18%
Issues with plant health (e.g. insect pests, disease, poor soil, etc.)	0	0%
Issue with groundskeeper(s)	1	3%
Unknown reason(s)	6	18%
Other (Please elaborate.)	5	15%

If Q9. = YES

Q11. How long has the school garden or other growing space been operating? (when was it first created)

	Freq	% (Out of 167 Responses)
< 1 year	33	20%
1-3 years	50	30%
4-6 years	35	21%
7-9 years	15	9%
> 10 years	34	20%

Q12. Did your school receive funding to support creating/starting your growing space? (Please do not include continuing funds for management or staff.)

	Freq	% (Out of 174 Responses)
Yes	117	67%
No	57	33%

Q13 How would you describe your school garden? (Select all that apply.)	Freq	% (Out of 185 Responses)
In planters/pots/containers	34	18%
In raised beds in one or more areas	45	24%
In the ground in one or more areas	49	26%
Greenhouse	87	47%
Hoop house	3	2%
Off school campus (Please specify location.)	13	7%
Other (Please specify.)	45	24%

Q14. What types of plants exist/will be grown in your school garden this academic year? (Select all that apply.)

	Freq	% (Out of 177 Responses)
Vegetables	149	84%
Herbs	91	51%
Fruits	29	16%
Nuts	2	1%
Nebraska native plants	47	27%
Ornamentals (any non-edible plants)	103	58%
Other (Please specify.)	18	10%

Q15. Which of the following features does your school garden have? (Select all that apply.)	Freq	% (Out of 141 Responses)
Compost area	27	19%
Worm bin	8	6%
Man-made wildlife habitat (e.g. bird bath, bird feeder, bird or bat houses, bee nesting block, etc.)	23	16%
Pond or water feature	14	10%
Tool shed/storage area	46	33%
Weather station	8	6%
Food prep/kitchen area	11	8%
Sinks	30	21%
Outdoor teaching area (e.g. benches, tables, etc.)	44	31%
Interpretive signage	7	5%
Rain barrel	15	11%
Solar panels	3	2%
Automated irrigation	36	26%
Greenhouse	88	62%
Domestic animals (e.g. chickens, ducks, rabbits, etc.)	10	7%

END OF SCHOOL GARDEN DESCRIPTION

GARDEN-BASED LEARNING

If Q9. = YES

Q16. Is the school garden or other growing space used to support student learning?	Freq	% (Out of 178 Responses)
Yes	173	97%
No	5	3%

If Q16. = NO

Q17. Which, if any, of the following are barriers to student learning in the garden? (Select all that apply.)	Freq	% (Out of 5 Responses)
Lack of garden-based instructional resources	4	80%
Lack of standards-aligned learning in the garden	2	40%
Lack of professional development or training opportunities in garden-based learning	3	60%
Lack of instructional time	3	60%
Concern that students may harm or disturb garden plants	0	0%
Concern about student behavior in the garden	0	0%
Other (Please specify.)	2	40%

If Q16. = YES

Q18. When is the garden used to support student learning? (Select all that apply.)	Freq	% (Out of 172 Responses)
During class instruction time	157	91%
During recess	12	7%

After school	83	48%
Before school	24	14%
Summer program/camp	46	27%
Non-school community uses	21	12%
Other (Please specify.)	7	4%

Q19. Who teaches students in the garden? (Select all that apply.)	Freq	% (Out of 172 Responses)
Paid school staff (e.g. garden coordinator, afterschool staff, etc.)	54	31%
Paid non-school staff (e.g. Americorps, non-profit, etc.)	6	3%
School teachers	145	84%
Older students (buddy teaching)	20	12%
Master gardeners	9	5%
Parent volunteers	17	10%
College interns/volunteers	3	2%
Other community volunteers	24	14%
Other (Please specify.)	7	4%

Q20. Which grade level(s) participate in garden programming for student learning at your school? (Select all that apply.)

	Freq	% (Out of 172 Responses)
Pre-K	21	12%
Kindergarten	50	29%
First	47	27%
Second	46	27%
Third	50	29%
Fourth	53	31%
Fifth	55	32%
Sixth	43	25%
Seventh	74	43%
Eighth	86	50%
Ninth	121	70%
Tenth	129	75%
Eleventh	126	73%
Twelfth	124	72%

If Q16. = YES and Q18 = DURING CLASS INSTRUCTION TIME

Q21. What % of your school's students do you estimate visit the garden for formal classroom instruction per academic year?

	Freq	% (Out of 157 Responses)
10%	43	27%
20%	29	19%
30%	31	20%

40%	16	10%
50%	8	5%
60%	11	7%
70%	5	3%
80%	6	4%
90%	4	3%
100%	4	3%

If Q16. = YES

Q22. Which of the following core subjects are taught using the school garden? (Select all that apply.)	Freq	% (Out of 125 Responses)
Math	50	40%
Science	124	99%
History/Social Studies	10	8%
English-Language Arts	10	8%

Q23. Which of the following non-core subjects are taught using the garden? (Select all that apply.)	Freq	% (Out of 164 Responses)
Agricultural studies	136	83%
Art	18	11%
Business/Entrepreneurship	27	16%
Computer technology	3	2%
Environmental studies	35	21%
Foreign language	9	5%
Health/Nutrition	57	35%
Family and Consumer Sciences/Culinary Arts	38	23%
Physical education	5	3%
Special education	18	11%
Service Learning/Community Service	41	25%
Other (Please specify.)	3	2%

Q24. Which educational resources and materials are used to teach in the school garden?	Freq	% (Out of 162 Responses)
Textbooks	54	33%
Trade books (fiction or non-fiction literature)	11	7%
Garden-based curriculum (Please specify. e.g. Junior Master Gardeners; Learn, Grow, Eat, Go; etc.)	35	22%
Nature-based curriculum (Please specify. e.g. Project Learning Tree, Project Wild, etc.)	22	14%
Self-created lesson plans	133	82%
Resources received at workshops or seminars	61	38%
Websites	74	46%
Other- Please specify.	14	9%

END OF GARDEN-BASED LEARNING

SCHOOL GARDEN PRODUCTION

If Q9. = YES

Q25. What is done with plants or food grown in the garden? (Select all that apply.)	Freq	% (Out of 165 Responses)
Used in school lunch	78	47%
Used for academic study	56	34%
Sold	61	37%
Donated	63	38%
Composted	19	12%
Harvested and eaten during garden time	58	35%
Harvested and eaten during other school time activities (e.g. classroom tastings, cafeteria tastings)	58	35%
Harvested and eaten during activities out-of-school activities (e.g. PTO meetings, school board meetings, etc.)	6	4%

If Q25. = SOLD

Q26. When plants or food from the school garden are sold, is this associated with any student business venture?	Freq	% (Out of 60 Responses)
Yes	25	42%
No	35	58%

If Q9. = YES

Q27. Would you define your school garden as part of Farm to School programming? ? (Farm to School programs connect schools with local farms with the objectives of serving healthy meals in school cafeterias, improving student nutrition, providing health and nutrition education, and supporting Nebraska's farmers.)

	Freq	% (Out of 177 Responses)
Yes	25	14%
No	113	64%
I don't know	18	10%
I hadn't heard of Farm to School until now	21	12%

END OF SCHOOL GARDEN PRODUCTION

SCHOOL GARDEN PROGRAM DEVELOPMENT

If Q9. = YES

Q28. Are there any paid staff that manage the garden or teach in the garden outside of classroom teachers? Select yes if there are any (school or non-school) support staff that receive any types of funds for garden programming.

	Freq	% (Out of 176 Responses)
Yes	23	13%
No	153	87%

If Q28. = YES

Q29. What is the hourly pay rate range for paid (non-classroom teacher) garden support staff?	Freq	% (Out of 16 Responses)

$1-5/hour	0	0%
$6-10/hour	6	38%
$11-15/hour	7	44%
$16-20/hour	3	19%
$21-25/hour	0	0%
$26-30/hour	0	0%
$30-35/hour	0	0%
> $35/hour	1	6%

Q30. During the academic year, on average, how many hours per week do paid staff (non-classroom teachers) work/teach in the garden? (For multiple staff, please list separately.)

Average	4
Min	0
Max	10
Total Responses Who Provided Number of Hours	10

If Q9. = YES

Q31. In the past three years, what types of garden-based professional development have educators at your school received? (Select all that apply.)

	Freq	% (Out of 166 Responses)
None	94	57%
On-site school-sponsored workshop	8	5%
Off-site workshop	37	22%
Conferences or seminars	40	24%
Other (Please specify.)	8	5%

Q32. Which of the following school garden topics would you attend or like to see offered in your area? (Select all that apply.)

	Freq	% (Out of 149 Responses)
Gardening skills	71	48%
Outdoor classroom management	71	48%
Garden-based instruction	120	81%
Other (Please specify topic.)	12	8%

Q33. Has your school conducted program evaluation or assessment for your school garden program in the past five years?

	Freq	% (Out of 164 Responses)
Yes	22	13%
No	142	87%

Q34. During the last academic year, what was your total annual school garden budget (including staff and materials)?

Average	$3,569

Min	$0
Max	$100,000
Total Responses Who Provided Number of Budget	86

Q35. During the last academic year, how was your funding divided?	Average	Min	Max	Total Responses
Garden materials (e.g. tools, plants, hardscaping, etc.) :	62%	0%	100%	167
Professional development (e.g. workshops, curriculum, etc.) :	1%	0%	30%	167
Maintenance staff :	4%	0%	70%	167
Instruction staff :	14%	0%	100%	167
Other (Please specify resources.) :	19%	0%	100%	167
Total :	100%	0%	100%	167

Q36. During the last academic year, what were the funding sources for your school garden program? (Select all that apply.)

	Freq	% (Out of 161 Responses)
School or district funds	102	63%
Individual donations	29	18%
Community/business donations	33	20%
Grants	56	35%
PTA/PTO funds	5	3%
Other (Please specify.)	31	19%

Q37. During the last academic year, with which of the following support organizations did your school garden program partner or collaborate? (Select all that apply.)

	Freq	% (Out of 113 Responses)
Non-profit organizations	45	40%
After school programs	31	27%
University or college partnerships	14	12%
Local businesses	43	38%
Local farms	13	12%
Other (Please specify.)	30	27%

Q38. Please indicate which of the following have had a role in starting or continuing to manage in your school garden?

	Starting the garden		Summer management (weeding, watering, etc.)		Fall or Spring management (planning, prep, planting, etc.)		
	Freq	%	Freq	%	Freq	%	Total Responses
Master Gardeners	15	79%	9	47%	11	58%	19
Parent volunteers	23	61%	25	66%	19	50%	38
College interns	1	50%	1	50%	2	100%	2
Other volunteers	22	65%	23	68%	22	65%	34
Paid garden staff	8	73%	3	27%	11	100%	11

Paid non-school support organization staff	5	83%	5	83%	5	83%	6
Classroom teachers	108	91%	79	66%	103	87%	119
Students	108	87%	86	69%	114	92%	124
Custodial or grounds staff	32	62%	34	65%	23	44%	52
Administrators	28	82%	12	35%	9	26%	34
Other (Please specify.)	11	100%	9	82%	10	91%	11

END OF SCHOOL GARDEN PROGRAM DEVELOPMENT

SCHOOL GARDEN PROGRAM ATTITUDES

If Q9. = YES

Q39. Which of the following positive observations have you made in your school garden participants? (Select all that apply.)

	Freq	% (Out of 148 Responses)
Increased environmental attitudes	66	45%
Increased community spirit	46	31%
Increased self-confidence	51	34%
Increased social skills/behaviors	60	41%
Increased leadership skills	70	47%
Improved attitude toward school	58	39%
Sense of volunteerism	63	43%
Improvements in health and nutrition	48	32%
Improved motor skills	12	8%
Academic gains	43	29%
Other (Please specify.)	17	11%

Q40. Describe any negative observations that you have seen in your school garden participants.

Total Responses 29

"It's hard work", "it's dirty",lack of instant gratification

A few students don't like to be outside or get their shoes dirty.

Adds at least an extra hour per day for the Ag. Teacher.

Amount of time to make this productive has frustrated some teachers. Don't like the time we spend on it with little results.

Bright lights are irritating to some peoples eyes.

Careless when planting/not meticulous.

Community participants aren't always around to help-usually only after school program staff and students.

Describe any negative observations that you have seen in your school garden participants.

Distraction?

It is hot in the greenhouse!

It's an ugly space.

It's extremely difficult to keep interest up in staff and students.

Maintenance and upkeep is always a concern.

Non participants vandalizing garden.

Not wanting to participate, throwing vegetables, wanting to do it all by themselves and not letting other kids help.

Plants don't always grow as planned and people get frustrated.
Really makes the students that are weak in leadership/community pride and that are lazy stand out to disappoint others and I.

Some routinely tears up the garden.

Some students are content to just sit back and let others do the assigned tasks.

Some students seem to think gardening is too much work, it's easier to go buy their food.

Some tools have been broken due to carelessness.

Students sometimes think its a time to get out of class and doing anything.

Sstudents want paid to contribute.

The students really don't like to weed. LOL.

They get burned out during the summer taking care of things.

Trash.
We have had significant difficulty finding volunteers to maintain our butterfly garden and came close to eliminating it.

We have replaced our ag teacher and the greenhouse is being used more effectively now.

Weeding at times.

Q41. Please rate the importance of the following **potential benefits** in your school garden.	Extremely important		Very important		Moderately important		Slightly important		Not at all important		Total Responses
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	
Learning opportunities for core subjects (math, science, language arts, etc.)	37	25%	58	39%	41	27%	11	7%	3	2%	150
Increasing environmental attitudes	36	24%	72	47%	34	22%	7	5%	3	2%	152
Improving attitude toward school	34	23%	70	46%	37	25%	8	5%	2	1%	151
Increasing fruit and vegetable intake	40	27%	48	32%	39	26%	12	8%	10	7%	149
Trying new foods	35	23%	56	37%	38	25%	12	8%	12	8%	150
Improving social/emotional health	27	18%	65	44%	42	28%	11	7%	4	3%	149
Improving social skills	29	19%	69	46%	35	23%	11	7%	6	4%	150
Improving decision-making skills	42	28%	64	42%	31	21%	9	6%	5	3%	151
Improving health and nutrition	31	21%	71	47%	30	20%	10	7%	8	5%	150
Increasing awareness of careers (agriculture, horticulture, culinary arts, food service, etc.)	49	32%	65	43%	28	19%	5	3%	4	3%	151
Growing food for the school cafeteria	24	16%	34	23%	42	28%	17	11%	32	21%	149
Growing food for community distribution (e.g. food pantry)	23	16%	34	23%	34	23%	28	19%	28	19%	148
Improving community engagement	33	22%	47	31%	43	29%	16	11%	11	7%	150
Beautifying school grounds	26	17%	50	33%	43	29%	19	13%	12	8%	150

Q42. Please rate the importance of the following **potential challenges** in your school garden.	Extremely important		Very important		Moderately important		Slightly important		Not at all important		Total Responses
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	
Managing an aesthetically pleasing garden space	35	23%	68	45%	27	18%	11	7%	9	6%	150
Finding and securing continued garden funding	45	30%	41	27%	40	26%	14	9%	11	7%	151
Supporting student learning and engagement	65	43%	60	40%	18	12%	3	2%	4	3%	150
Maintaining a good relationship with groundskeeper(s)	38	25%	58	39%	32	21%	8	5%	14	9%	150
Engaging community members	33	22%	54	36%	41	27%	16	11%	6	4%	150
Minimizing noise or other disruptions	12	8%	35	23%	50	33%	24	16%	29	19%	150
Minimizing risk and liability	34	23%	50	33%	36	24%	14	9%	16	11%	150

Q43. Please rate how important each of the following factors/resources would be in supporting the school garden as an academic instructional tool.

	Extremely important		Very important		Moderately important		Slightly important		Not at all important		Total Responses
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	
Access to standards-aligned curriculum and materials	34	23%	52	35%	41	27%	18	12%	5	3%	150
Teacher training in gardening skills	34	23%	68	45%	32	21%	13	9%	4	3%	151
Teacher training in garden-based learning instruction	41	27%	70	46%	26	17%	10	7%	4	3%	151
Teacher training in outdoor classroom management	39	26%	58	39%	34	23%	15	10%	3	2%	149
Lesson planning time	38	26%	54	36%	39	26%	15	10%	3	2%	149
Encouragement from administrators to use the garden as an instructional tool	44	30%	66	44%	28	19%	7	5%	4	3%	149
Other (Please specify.)	3	16%	5	26%	5	26%	1	5%	5	26%	19

END OF SCHOOL GARDEN PROGRAM ATTITUDES