



**Oklahoma Department of Agriculture, Food, and Forestry  
(ODAFF)**

**State Point of Contact: Jason Harvey**

**USDA AMS Agreement Number: 12-25-B-1249**

**Final Report**

**December 15, 2014**

# **SELF SERVING A HEALTHY LIFESTYLE: WESTWOOD ELEMENTARY SALAD BAR PILOT PROJECT**

## **Project Summary:**

Copper Bear Farms of Guthrie, Oklahoma originally proposed this project because of the perceived barriers with farmers selling their produce direct to local schools. We also recognize the childhood diabetes epidemic and the fact that most food that children eat is grown and trucked over 1,500 miles on average before hitting the plate. We thought that growing year-round in a controlled environment may be one way we could help change what children are eating.

If our research proved successful, which it did, we would find that schools are willing to partner with farmers to educate children and put healthy, local fresh-grown produce on the menu. We learned that schools need local farmers as much as local farmers need schools to buy their produce. While cost is still the number one factor prohibiting more schools from buying direct from local farmers, the educational benefits of the Farm to School Program in Oklahoma is what can help students learn to relate better to the foods they eat.

## **Project Approach:**

The Specialty Crop grant awarded to Copper Bear Farms enabled us to research the costs to build and operate a hydroponic greenhouse to grow during school months and provide tomatoes and fresh lettuce to the students at St. Mary's Catholic School of Guthrie in hopes students would eat more fresh produce and we, as farmers, could better understand the barriers to getting our product into schools through the Farm to School program.

Project funds allowed for the purchase of supplies, project staff, and the writing of a comprehensive report to share with other interested farmers. We built an 8,640 SF 3-bay greenhouse during the project period by providing a fifty-percent cost share for the project. It took two years to complete the project and another six months to research and write the comprehensive report.

Hydroponic lettuce is a high-value specialty crop in Oklahoma. We can harvest and deliver fresh lettuce to schools the same day. If more farmers can grow for more months out of the year, specialty crop growing in Oklahoma will be enhanced. As students learn to expect more (in taste and nutrients) from the food they are offered, they may develop better eating habits.

Our project partner, St. Mary's Catholic School of Guthrie, was accommodating and welcoming. We learned about the National School Lunch Program and its practical application in a school setting. We concluded that whatever the national serving requirement of fruits and vegetables, children are still throwing a lot of food away because they do not expect to like salads or processed tomatoes and lettuce. Once they were provided fresh cherry and grape tomatoes and fresh red and green lettuces picked within hours of it becoming a salad, they began to like and eat it.

## **Goals and Outcomes Achieved:**

Goals – All project goals were achieved

- Provide free salad bar crops to supply the student needs (as determined by participating school) of one elementary school (St. Mary's Catholic School) for one school year
- Research and produce a business model for small greenhouse growers to partner with local schools under Farm-To-School contracts

Objectives – All project objectives were achieved

- Establish a year-round greenhouse for the project study
- Produce salad bar crops in quantity and quality to supply the student needs of one elementary school for one school year
- Research and conduct two surveys (fall and spring) for Business Model research to see what the impediments are to adopting healthy eating practices in school
- Create school curriculum, develop teaching aids, host farm visits, teach about the scientific and economical benefits of greenhouse growing
- Write a step-by-step guide to growing and putting more salad bars in Oklahoma schools

## **Beneficiaries:**

The direct beneficiaries of this project were the students of St. Mary's Catholic School of Guthrie or approximately 150 children. This project afforded free tomatoes and free lettuce during a school year to determine if children would make better eating choices (to eat or not to eat) at lunch. At the end of the project and during the farm tour, St. Mary's children ate the fresh lettuce (red and green butterhead, leaf, and romaine) and remarked that they liked the taste of it over iceberg (actually a romaine-iceberg mix from the school's distributor) and would eat more salad.

The project indirectly benefited Oklahoma farmers with the production of a detailed report for public dissemination and a pictorial guide to help them build and cost a permanent greenhouse and year round hydroponic growing system.

This project has the potential to impact the local economy through sales of building materials and increase in specialty crop growing in Oklahoma as well as enhance farming revenue both locally and statewide.

## **Lessons Learned:**

This project was a successful endeavor to enhance the competitiveness of Oklahoma specialty crops. We created a pictorial guide to describe how other Oklahoma farmers can diversify into greenhouse growing and sell their produce to local schools. We also researched and discussed barriers and ways to overcome them to put healthy, local produce in our Oklahoma schools while building local farming enterprises.

We now know the costs and requirements for local farmers to build permanent greenhouses and systems to grow during school months. We also know principals and teachers need the help of local farmers to teach about healthy eating, the science of growing food, the value of local economies and practicing

family sustainability. We had originally thought schools were unable to buy from local farmers. We also thought the Federal requirements of the National School Lunch Program (NSLP) would be a barrier to buying local. We found that our project partner, St. Mary's, is eager to work with local farmers, but cost is the number one factor keeping them with a distributor rather than buying produce from local farmers.

More research is needed to understand the marketing and distribution barriers of local farmers getting their produce into schools, local restaurants and with distributors.

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**Additional Information:**

Appendix C: "Self-Serving a Healthy Lifestyle: A Business Model for Rural Farmers to Greenhouse Grow the Oklahoma Farm to School Program" written by Lisa Kraft in November 2014, as a result of this Specialty Crop Grant Project.

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## **THE ECONOMIC IMPACT OF OKLAHOMA WINE, GRAPE JUICE, AND VINEYARDS - 2010**

**Project Summary:**

The Oklahoma Grape Industry Council (OGIC) representing over 90% of commercial vineyards and wineries in the state of Oklahoma partnering with Frank, Rimerman + Co. LLP of St Helena, CA initiated a project to document and report the economic impact of Oklahoma's wine, grape juice, and vineyard industry. Valid information is required to move the industry forward in positive and progressive ways and to help over 250 small vineyard and winery businesses in Oklahoma make sound decisions to improve business performance and help them achieve their goals.

OGIC has published economic impact analysis results in a brochure for use in marketing, education, and governmental activities.

The purpose of this project was to determine the economic impact of the Grape and Wine Industry in Oklahoma. Specifically, this project resulted in a report of economic impact information including: wine sales, production, and growth rate figures; industry employment figures; grape sales, production, and revenue; tourism economic impact; equipment and supplier economic impact; and tax revenues generated by the industry.

**Project Approach:**

The OGIC contacted Frank, Rimerman + Co. LLP of St Helena, CA and requested a proposal to undertake the work proposed in the Specialty Crop Block Grant to assess the impact of the fledgling

Oklahoma Grape and Wine Industry. The OGIC agreed to provide Excise Tax Information paid by Oklahoma Wineries for a two year period. Additionally, OGIC provided contact information for all known Oklahoma Wineries and Vineyards. Under contract agreement, Frank, Rimerman + Co. LLP developed Oklahoma specific questionnaires for Oklahoma's vineyard and winery owners, and compiled information received. There was a response rate of approximately 65%.

The project was initiated on February 3, 2012. Draft survey forms were received from Frank, Rimerman on March 2, 2012. A list of sixty Oklahoma Wineries and approximately 200 Vineyards along with owner contact information was forwarded to Frank, Rimerman by the OGIC Board of Directors. Surveys were sent to Oklahoma Wineries by Frank, Rimerman on March 8, 2012 followed by surveys to Vineyards on March 21, 2012. Preliminary figures in a draft preliminary report was provided ahead of schedule on May 7, 2012, and a final report was submitted to OGIC on May 22, 2012.

A support agreement was signed with the Oklahoma State University, Food and Agricultural Products Center to design a print-ready brochure containing the key points of the Oklahoma Economic Impact report. The Brochure was completed and forwarded to the printer on June 24, 2012. The first printing of 10,000 brochures was received on July 6, 2012. The brochures were distributed to Oklahoma Vineyards and Wineries by OGIC. A second printing of an additional 10,000 brochures was completed on September 24, 2012. The project was projected for completion by September 15, 2012, and was actually completed on September 24, 2012. The grant was for \$23,500. Expenditures were \$22,390.72 plus \$916.90 contribution by OGIC for printing making total expenditures for the project \$23,307.62. Economic Impact Brochure Design at the Oklahoma State University Food and Agricultural Products Center was completed for \$1,000 instead of the \$2,000 projected in the original work plan resulting in some excess funding. Excess funding in the amount of \$1,109.28 will not be required. The project participants carried out the project in an expeditious and professional manner, and no problems were encountered.

### **Goals and Outcomes Achieved:**

Frank, Rimerman + Co. LLP of St Helena, CA, recognized as the leading research source on the U.S. wine industry, conducted the Oklahoma Grape and Wine Industry Economic Survey using the latest year of complete information – 2010. This survey was commissioned by the Oklahoma Grape Industry Council, LLC, a non-profit professional organization representing over 90% of the commercial grape and wine industry in Oklahoma using a Specialty Crop Block Grant awarded by USDA through the Oklahoma Department of Agriculture.

In the late 1800s Oklahoma was the fourth largest grape growing region of the United States, so there is a long tradition of family-owned vineyards and family winemaking in the state. The modern Oklahoma Grape and Wine Industry has surged from 3 Wineries in 2000 when passage of State Question 688 established winery tasting rooms, to 38 Wineries in 2005, to 51 in 2010, to more than 62 today. That's a 1,600% increase in the number of Wineries in the last 10 years.

Although the Oklahoma Grape and Wine Industry is still in its infancy existing essentially for only the past 12 years, the state ranks 31st largest in wine production. The vast majority (95%) of Oklahoma Wine sales are direct to the consumer in tasting rooms and at festivals and trade shows. There are approximately 139 commercial vineyards operating 439 acres of bearing age grape vines in Oklahoma.

The demand for wine grapes in Oklahoma far exceeds the supply. Oklahoma's Grape and Wine Industry is valued at \$98.5 million in economic impact to the state and is comprised of more than 200 mostly rural small businesses. Unlike many industries, once vineyards and wineries are established, they are effectively rooted and tied in place because of their agriculture dependence and building/equipment infrastructure.

The primary results of the Oklahoma Economic Impact Survey are:

Total Oklahoma Impact	\$98.5 million
Full-time Equivalent Jobs	840
Wages Paid	\$23 million
Wine Produced (Cases)	30,000
Retail Value of Oklahoma Wine Sold	\$4 million
Vineyard Revenue	\$311,000
Number of Wineries	51
Number of Grape Growers	139
Grape-Bearing Acres	490
Wine-Related Tourism Expenditures	\$13 million
Number of Wine-Related Tourists	134,000
Taxes Paid: Federal / State and Local	\$6 million / \$5 million

Having trusted knowledge of the phenomenal growth of the Oklahoma Grape and Wine Industry in only 12 years has inspired vineyards and wineries to work harder together to establish industry goals in three areas of common interest: education, marketing and government. We have learned through this project that Oklahoma wines account for 1.83% of Oklahoma market share of wines sold each year. Through positive identified goals, OGIC is moving forward to establish Oklahoma wines as 5% of market share within the next five years. Educational Goals include: expanding classes at OSU to include both grape and wine quality improvement, overcoming wine credibility issues, enhancing communication within and outside the industry, assisting new growers through mentoring and educational programs. Marketing goals include: improving ties to the nationwide grape and wine industry and among Oklahoma vineyards and wineries, facilitating Oklahoma grape contracting and marketing, implementing, and promoting face-to-face shipping and wine clubs, and expanding to include multiple tasting rooms. Governmental goals include: gaining reduction in distribution license fees and other fees which will help small state-owned rural businesses thrive, not just survive, organizing grass roots lobbying efforts to promote legislation favorable to a healthy Oklahoma grape and wine industry, and continuing to create an environment in Oklahoma Government which encourages and assists more than 200, mostly rural, small winery and vineyard businesses.

### **Beneficiaries:**

The grape and wine industry in Oklahoma has been the greatest beneficiary of the Oklahoma Economic Impact survey results. Brochures used to start conversations about the industry were quickly distributed throughout the state and depleted so that a second printing was necessary. The OGIC has procured wine glasses and will distribute economic impact brochures to Oklahoma Legislators at the beginning of the 2013 Legislative Session as part of a grass roots lobbying effort to achieve legislation favorable to small, rural businesses. Oklahoma State University, Redland Community College, and Oklahoma State University Oklahoma City Campus offer courses and training in viticulture and/or enology. The

publicity created by this project has created further interest in education about the industry – something badly needed before resources are expended to establish a vineyard or winery.

Because of this project, the Oklahoma Grape and Wine Industry has received favorable press in the Oklahoma Journal Record, the Oklahoma Gazette, the Daily Oklahoman, the Tulsa World, the Norman Transcript, and other local town newspapers. The impact of getting the Oklahoma Grape and Wine message to the general population in Oklahoma has been approximately 1.5 million on-line and newspaper subscribers. The results of the economic impact survey are a strong indication that the Oklahoma Grape and Wine Industry is thriving, but has a future which needs more vineyards producing high quality Oklahoma grapes. The general public through their support at local tasting rooms and their attendance at festivals and tradeshow continues to show tremendous support of the industry.

### **Lessons Learned:**

The primary positive lesson learned is that working cooperatively as a state wide industry it is possible to “move mountains” that one person or one small business acting alone cannot budge, we also learned that working with companies that understand the grape and wine industry fully adds expediency and credibility to the task at hand. Namely, vineyards and wineries in the state of Oklahoma partnering with Frank, Rimerman + Co. LLP of St Helena, CA, to get an economic impact survey done timely and with the professional care and consideration which comes from having done this task before. The Oklahoma State University, Food and Agricultural Products Center was a good choice for brochure design work as OGIC had prior experience in working with Mandy Gross and other marketing staff at the facility

On the negative side, OGIC should have included infrastructure costs in the survey, so that a dollar figure could have been calculated for the amount of private dollars invested in Oklahoma’s winery structures, processing, fermentation, and bottling facilities and equipment as well as property, nursery stock, and vineyard maintenance and harvesting equipment. Additionally, as the Economic Impact Brochures were completed and published, it became clear that part of the funding request should have included travel expenses for Frank, Rimerman + Co. LLP to come to Oklahoma and present findings from the survey.

All-in-all the economic survey process was greatly needed – conclusions were surprising to some who have been in the industry for a long time. The Oklahoma Grape Specialty Crop will benefit from this effort, and we are certain that the efforts of the Oklahoma Grape and Wine Industry will continue to benefit the state of Oklahoma and its citizens.

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### **Additional Information:**

Attached in Appendix A is a copy of the economic impact analysis brochure along with the final report submitted by Frank, Rimerman + Co. LLP in Appendix B.

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# **EVALUATION OF COLORED SHADE CLOTH IN HOOP HOUSE TECHNOLOGY ON VEGETABLE PRODUCTION IN OKLAHOMA**

## **Project Summary:**

Oklahoma has a potential advantage in vegetable production with its long growing season, available lands and sufficient water supply. However, with the intense heat during the summers, heat induced stress can limit yields and reduce quality of many crops. Therefore, it is crucial to evaluate technologies that could reduce heat stress. During a recent visit to Israel, horticultural specialists from Oklahoma evaluated technologies utilized in that region for vegetable and fruit production. One technology that has potential to benefit Oklahoma growers is the use of colored shade cloth. These colored shade clothes have been very successful in Israel to reduce water usage, pesticide usage and increase yields in many crops. These shade clothes have the potential to lengthen the growing season of many crops, increasing the production for growers. This two year study evaluated the technology of using shade clothes to enhance vegetable production within Oklahoma. A replicated study was conducted at the Noble Foundation to evaluate the benefits of colored shade cloths on production of tomatoes.

## **Project Approach:**

Shade Cloth Structures (14 ft. X 28 ft.) were purchased and site prepared in March 2012. Tomato plants were started in the greenhouse and transplanted into research plots. Two varieties of tomatoes were selected for the study. Mountain Spring, which is one of the recommended varieties for commercial production in Oklahoma and Florida 91, which was selected for its ability to set fruit during higher temperatures. Ten plants of each variety were planted in each plot. Plots were replicated three times in a completely randomized block design. Data was collected from each plant and total yield, number of fruit and grade of fruit were recorded. Along with plant data, soil moisture, temperature and relative humidity inside the shade cloth structure were also collected.

Data was collected during the 2012 and 2013 growing season. The two seasons were extremely different growing conditions with 2012 being a warmer spring and hotter summer than 2013. During the spring of 2013 there was a late frost that stunted the plants and the early summer was much cooler resulting in slower growing plants. This caused a delay in harvest. During 2012 first harvest occurred on June 11 and 2013 first harvest did not occur until July 1.

Majority (approximately 70%) of production occurred in a three week window, 2012 mid-July to the end of July and 2013 end of July to mid-August. Because of the delay in fruiting in 2013 compounded with the cooler temperatures in the late spring there were less fruits produced in 2013.

## **Goals and Outcomes Achieved:**

Colored shade cloths have shown a potential to lengthen the growing season of many crops. This study was designed to evaluate three different colors of shade cloth on the production of tomatoes in Oklahoma. Black, red and aluminet shade cloths were compared to a control. There was no significant difference in total production per plant or number of fruits per plant among the treatments. Average

weight of fruit grown under black shade cloth was significantly higher than fruit grown under red shade cloth. Black shade cloth increased percent marketable fruit compared to control, while the red shade cloth had a lower percent marketable fruit than the control. Percent grade 1 fruit was significantly lower under the red shade cloths compared to other treatments. All shade cloths declined the maximum temperature observed within the canopy of the plants compared to control. With the black shade cloth significantly lower than the red or aluminet for maximum temperature. This study was conducted for two years and there was a significant difference between both years. The data indicates that the black shade cloth increased the performance of the tomato plants over the control, while the red shade cloth actually decreased average weight and percent marketable fruit.

Treatments	Fruit per plant	Weight per Plant	Weight per Fruit	Percent Grade 1 fruit	Percent Marketable Fruit	Marketable Fruit Weight
Control	30.28 a*	10.92 a	5.6 ab	28 a	62.2 b	5.9 a
Black	30.99 a	11.3 a	5.73 a	33.6 a	71.7 a	6.1 a
Red	34.36 a	11.83 a	5.14 b	21.2 b	52.4 c	6 a
Aluminet	34.09 a	12.67 a	5.63 ab	31.5 a	67.6 ab	6 a

\*Difference in letters indicate statistically difference at alpha =0.05

### **Beneficiaries:**

Results from this study will be presented to growers at the Horticulture Industry Show in Tulsa in January 2014, and to scientists at the Southern Region American Society of Horticulture annual conference in Dallas in February 2014 and to scientists at the American Society of Horticulture annual conference in Orlando Florida in July 2014. There will also be a scientific journal article submitted to HortTech Journal in 2015. We have plans to continue studying the effects of the colored shade cloths with vegetable production collaborating with local growers, and Oklahoma State University. There are plans to utilize some of the structures at local grower's locations for demonstration purposes.

### **Lessons Learned:**

The primary lesson learned from this work was that the current recommend practice of using black shade cloth to reduce heat stress in tomatoes was the correct recommendation. Different colored shade cloth may have different benefits on different crop, however for tomato production the standard black shade cloth was the best for southern Oklahoma.

There are still several studies that could be conducted on colored shade cloth on production of other crops such as greens. At the end of both growing seasons the plant biomass was collected and there was a difference in total biomass produced in the different treatments. The red shade cloth reduced the overall biomass which could be beneficial in some crops.

With the extreme difference between years it was apparent with the Oklahoma weather tomato production is very dependent on weather. There are years that having the shade cloths would benefit a grower, but the added cost of shade cloths and structures would not be profitable each year.

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**Additional Information:**



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**PLASTICULTURE GARDEN GRANTS PROGRAM**

### **Project Summary:**

The Plasticulture garden grants are a continuation of a program partially funded by previous specialty crop grants. ODAFF utilizes the plasticulture program as a way to encourage minority and limited resource farmers to get started with growing fruits and vegetables on a commercial scale. These producers have knowledge and background in raising specialty crops but may not be growing them because they think they do not have enough land. Due to the advancements by growing in plastic producers are able to be profitable along with providing Oklahoman's greater access to locally produced fruits and vegetables. Participants are chosen from applications reviewed by a committee that includes ODAFF staff, specialty crop producers and representatives from state wide agricultural organizations. The plasticulture grant program allows selected individuals to participate in the program for a maximum of three years and covers the cost of installing the plastic, drip irrigation and supplies up to one Acre for 70 producers. SCBG funds were used to pay contractors to install the gardens, purchase the plastic and irrigation supplies and host a one-day Plasticulture workshop.

### **Project Approach:**

ODAFF conducted a series of press releases to statewide news publications along with other agricultural media to notify growers that applications were being accepted for the plasticulture grant. The grants awarded to participants were done so through a competitive process. The be eligible growers must qualify based on Langston University's definition of a limited resource farmer; being defined as a person with a direct or indirect gross farm income of not more than \$100,000 in each of the two previous years and has received little or no assistance from the government. The program is also limited to participants with forty (40) acres or less who are responsible for tilling of the soil for planting preparation, planting of the crops, harvesting and marketing of the crops. All eligible applications are forwarded to an external review committee to be scored and ranked.

Once selected participants must have their water tested and provide the results to the ODAFF plasticulture program coordinator to ensure that adequate supply and quality are available for the production of specialty crops. Once the water results are received and ODAFF is notified that the garden site has been tilled and ready for instillation the program coordinator will contact the appropriate contractor to install the garden.

Sixty three (63) gardens were installed for farmers across the state during 2012 with the assistance of our 5 contractors and ODAFF staff that ranged in size from ½ acre to 1 acre. During the garden installation process the contractors will install the plastic mulch, drip irrigation and set up the irrigation equipment. ODAFF utilizes SCBG funding to pay the contractors and purchase the plastic mulch and irrigation supplies.

At the conclusion of the growing season ODAFF staff mailed the 63 participants a survey/final report to ascertain their overall success. The participants are asked to tell how big their operation was along with the markets in which they sold their specialty crops. The following chart is also included for the participants to complete:

Date	Type of Produce	Weight of Produce Sold	Price Received for Produce	Weight of Produce	Value of Produce
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			Sold	Consumed	Consumed

Participants are given an appropriate amount of time to complete the paperwork and ODAFF staff will make one phone call to remind them of their deadline. If participants do not submit the report by January they are not allowed to participate the following growing season and are removed from the program.

**Goals and Outcomes Achieved:**

ODAFF’s initiative to assist limited resource farmers grow or increase their production of specialty crops has been met through the Plasticulture program. Most of the participants work off of the farm and garden as a hobby to provide additional income to their families. We see participants who stay in the program for the maximum three years gain confidence in their ability to grow and market specialty crops utilizing the plastic mulch even during less than perfect growing conditions. The production of specialty crops is very labor intensive; but due to the advantages of weed suppression, better water retention in the soil and increased utilization of water through drip irrigation; plasticulture makes it possible to be successful and provided extra income to those families. Participants are required to submit production reports at the conclusion of each year. From the reports it is estimated that each participant averaged \$2,500 in sales of specialty crops during the 2012 growing season.

**Beneficiaries:**

The plasticulture program had 63 individual farmers who participated in the program that directly benefited through increased revenue from the production of the specialty crops. Through production reports that each recipient is required to submit to ODAFF at the conclusion of each growing season; it was determined that over \$158,048.00 in specialty crops were sold. To promote and encourage better and healthier eating habits among the underserved community; participants are allowed to keep a portion of what was grown for family consumption. Reports show that the participants and their families were able to consume \$14,385.00 worth of fruits and vegetables that they would have otherwise had to purchase or would have just done without. As you can see with the amount of specialty crops that were sold the general consumer benefited as they supplemented their diets with a fresh locally grown fruit or vegetable.

**Lessons Learned:**

Weather and insects are two things that cannot be controlled in Oklahoma and have the ability to wipe out a persons garden. During the winter of 2012 Oklahoma was fortunate to get some rain that helped replenish sub-soil moisture that was lost due to two grueling summer droughts. By having the subsoil moisture early, growers were able to take advantage of the drip irrigation and were not playing a game of catch up with their watering.

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N/A

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## **OKLAHOMA GROWN FARMERS MARKET PROMOTION**

**Project Summary:**

Oklahoma's specialty crop production is mainly comprised of small to medium sized growers. The state does not have access to any major wholesaler markets and Farmers Markets continue to be a primary outlet for local farmers to sell their fruits and vegetables. With markets having anywhere from 6 to 35 vendors on a daily basis, ODAFF felt they could have a greater impact on sales by providing promotional grants to markets. In 2012 the Oklahoma Department of Agriculture, Food, & Forestry awarded 27 promotional grants to 100% Oklahoma Grown Farmers Markets with funding up to \$2,000 to be solely used for the purpose of promoting the consumption, purchase, and/or production of specialty crops. The 27 Oklahoma Grown Farmers Markets that were selected went through a detailed application process. The Specialty Crop grant funding has been very beneficial for the 100% Oklahoma Grown Farmers Markets. Each market has reported growth of consumer demand and vendors that participate in the market on a regular basis. ODAFF felt that by administering grants; markets would see an increase in consumer demand and an increase in the overall specialty crop production in Oklahoma.

ODAFF also used grant funding to purchase three (3) months of bill boards and 500,000 Produce bags to assist markets in a marketing campaign to the general public. The billboards were placed along major thoroughfares in and around major metropolitan areas that have a number of 100% Oklahoma Grown Farmers Markets in close proximity and a large population base. Reports showed that the billboard ads reached over 200,000 people across the state. Produce bags were purchased and distributed to vendors at 100% Oklahoma Grown Farmers Markets who only sell specialty crops at the market. The bags have the Oklahoma Grown logo printed on both sides and helps assure the consumer the produce they are purchasing was grown by the vendor.

**Project Approach:**

Through the Specialty Crop Block grant that ODAFF received; Farmers Markets that were registered as 100% Oklahoma Grown, were able to apply for grants up to \$2,000. ODAFF was able to award 27 markets out of 42 that applied. Grants were made available on a competitive basis to existing and start up markets that are, or plan to be, 100% Oklahoma Grown Farmers Markets. These grants were to be solely used for promoting the consumption, purchase, and/or production of specialty crops. The applications for grants were reviewed by ODAFF specialty crop staff, and evaluated by an external review committee. Markets that were awarded used the grant funding on advertisements, newsletter publishing, signage, and promotional ads. Per the contractual agreements with the markets, grant funds are distributed in two allocations. Markets receive ½ the funding up front and after expending it must

submit receipts, progress reports and examples of what the money was used to purchase. ODAFF staff reviews each receipt to make sure they fall within the allowable timeframe and are for projects that solely benefit specialty crops. Upon approval from ODAFF staff, the second allocation is made and those receipts must be submitted at the time of the final report. At the end of the year ODAFF also has an external audit conducted. ODAFF staff made two onsite visits to each market that was awarded specialty crop grant funding to insure the funds were used properly. Markets that received grant funding reported a slight increase in sales even with the extreme drought Oklahoma experienced.

ODAFF purchased three (3) months of billboard advertisements around the state to increase awareness of locally grown specialty crop fruit and vegetables at 100% Oklahoma grown Farmers Markets. Reports indicate that bill board ads reached over 200,000 people across the state. 500,000 produce bags were purchased by ODAFF staff and delivered to all 100% Oklahoma Grown Farmers Markets in the state. ODAFF felt by offering produce bags to OK-Grown markets in the state that it would encourage non-registered markets to become 100% Oklahoma Grown while also encouraging consumers to purchase specialty crops.

### **Goals and Outcomes Achieved:**

Our goal with this project was to enhance the competitiveness of specialty crops while also building consumer confidence in locally grown produce. It is estimated that there were more than 800 growers participating in Oklahoma Grown Farmers Markets state wide. This is a 12% increase from markets in 2011 with just over 700 vendors estimated. The grant funds raised customer awareness and demand at farmers markets, with a growth of 18% in sales from 2011. ODAFF feels that advertising, signage, and promotional ads continue to be a good avenue to reach the local populous.

Our goal with the bill boards and produce bags was to give the public greater knowledge of places to purchase fresh specialty crops. Both projects also helped educate the general public about specialty crops in Oklahoma and the benefits of eating healthy.

### **Beneficiaries:**

The beneficiaries of these programs were the 27 100% Oklahoma Grown Farmers Markets receiving grants, specialty crop producers selling at the markets, market managers, and the buying customers. Specialty Crop funds impacted all of the 100% Oklahoma Grown Markets that received grants. Markets that receive funding continue to show an increase in sales (\$1,334,106) and vendor participation at their markets with more than 800 specialty crop producers currently participating in 100% Oklahoma Grown Farmers Markets statewide. Offering grants up to \$2000, utilizing bill board ads, and using funds for produce bags has been very beneficial for OK-Grown farmers markets across the state.

### **Lessons Learned:**

The makeup of Oklahoma's network of Farmers Markets is as diverse as our landscape with markets being located in highly populated metropolitan locations to small rural communities. When it comes to advertising there is not a "one size fits all" and by allowing markets to utilize different forms of advertising to reach their customer base is the most beneficial to our 100% Oklahoma Grown Farmers Markets and specialty crops producers in Oklahoma.

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**Additional Information:**

N/A

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**OKLAHOMA SPECIALTY CROP CURRICULUM DEVELOPMENT**

**Project Summary:**

Oklahoma Ag in the Classroom's initial purpose for the Oklahoma Specialty Crop Curriculum Development grant was to create smart board lessons for teachers to use in their classrooms to promote specialty crop awareness and consumption. The health of Oklahoma's children and their knowledge of where their food comes from was a concern. Childhood obesity in Oklahoma had increased 148% since 1990 and Oklahoma continued to rank toward the bottom in fruit and vegetable consumption. Oklahoma Ag in the Classroom realized that children needed classroom reinforcement of healthy choices, connections to agriculture, and information about their food. Developing resources and technology for teachers to use in the classroom focused on specialty crops and utilizing Ag in the Classroom fruit and vegetable lessons was the goal of the project.

Ag in the Classroom staff saw a need to develop technology that teachers could access for free as they teach the required academic standards. Due to a shortage of funds provided to schools in Oklahoma, the replacement and utilization of textbooks was on the decline. Educators were turning to online resources due to the increased availability of technology in the classroom. By developing cross-curricular lessons, resources, and technology for teachers to use in their classroom, which were aligned to Oklahoma Academic Standards, Ag in the Classroom could create an invaluable resource for teachers. The lessons would also be tied to specialty crop information to hopefully increase student's awareness and consumption of these crops. Additionally, the lessons would be tied to important academic concepts such as reading comprehension, classification, fractions, or figurative language. The resulting lessons would be available to teachers for free creating a resource that was available, useful, and beneficial.

By providing SMARTBoard lessons with healthy connections to specialty crops for teachers to use on a regular basis, students would be introduced to the health benefits of these specialty crops. The lessons would highlight specialty crops featured in the fruit and vegetable booklets/lessons titled: These Roots Run Deep; To-may-to, To-mah-to, Po-tay-to, Po-tah-to; Field of Beans; Marvelous Melons; Pumpkins, Squash, and Other Cucurbits; and Oklahoma's Berry Best.

**Project Approach:**

Oklahoma Ag in the Classroom staff began this project by identifying 20 teachers who had expressed an interest in creating SMARTBoard lessons and inviting them to participate in a curriculum development workshop in early June 2012. Of the 20 teachers invited, only ten teachers attended the workshop. The workshop was held at Heritage Elementary school in Kingfisher, Oklahoma. The teachers were given a quick update on how to develop SMARTBoard lessons and then they divided up the existing Ag in the Classroom fruit and vegetable booklets/lessons titled: These Roots Run Deep; To-may-to, To-mah-to, Po-tay-to, Po-tah-to; Field of Beans; Marvelous Melons; Pumpkins, Squash, and Other Cucurbits; and Oklahoma's Berry Best.

Of these ten teachers, six went on to develop new lessons that focused on the information in the existing fruit and vegetable booklets. The teachers worked independently on their lessons and were required to have the new lessons completed by the end of July 2012 so that Ag in the Classroom staff could upload them to the AITC website and debut the lessons at the AITC State Conference in August of 2012. The lessons had to focus on specialty crops and were aligned to Oklahoma Academic Standards and featured specific skills taught in Oklahoma classrooms.

Staff created a survey for teachers to complete in order to gain information about the usage of the SMARTBoard lessons and also about the students recognition and consumption of specialty crops as a result of using the lessons. The survey was promoted on the homepage of the AITC website, as well as on the SMARTBoard download page of the AITC website and the AITC Facebook page. Additionally, teachers were emailed and asked to complete the survey if they were using AITC SMARTBoard lessons.

Ag in the Classroom staff continued to promote the opportunity for teachers to create SMARTBoard lessons and be paid for their time. The staff would inform educators of this opportunity at each of the professional development workshops that they presented. Additionally, a second one day conference workshop was embedded into a one-day "You're in Checotah" Garden Workshop put on by the Ag in the Classroom staff in June of 2013. The original 20 teachers who were interested in creating SMARTBoard lessons, as well as all who had signed up during the year, were invited. Those in attendance were given an update on previously created lessons. AITC staff followed up the workshop by emailing the attendees and providing email directions for the SMARTBoard lesson development as well as links to current AITC lessons that promoted specialty crops.

A portable SMARTBoard was purchased after receiving this grant to be used in the training of teachers and other persons working with Ag in the Classroom and educators. At the 2013 State Conference, a special session was held in which this SMARTBoard was used to showcase the new AITC Specialty Crop SMARTBoard lessons. During this time, educators interested in creating SMARTBoard lessons for AITC were asked to sign up and then information was sent to them in follow up emails regarding the details of creating such lessons and the monetary compensation for their time.

From June 2013 until the end of the project, AITC staff continued to promote the opportunity to teachers and follow up with any educators who showed an interest in creating lessons. During the summer of 2014, one new teacher and one of the previous six created the final specialty crop SMARTBoard lessons that have been added to the AITC website.

### **Goals and Outcomes Achieved:**

Initially, Ag in the Classroom staff hoped to find 20 teachers who would create 3 new lessons each. This would result in 60 new specialty crop SMARTBoard lessons on the AITC website. This proved to be a challenge. By the end of the project, AITC had a list of over 30 teachers who said they were interested in creating lessons. However, only seven teachers actually participated and created lessons. This was a surprise to the AITC Staff because teacher pay in Oklahoma is low and the staff expected that offering money to create lessons would result in numerous educators participating. However, creating SMARTBoard lessons is a very difficult process that takes time and creativity, and many educators chose not to participate after learning the details and expectations that were required.

In the end, Ag in the Classroom did end up with seven teachers participating and 80 new AITC Specialty Crop SMARTBoard lessons. This was more lessons than was originally hoped for. The new lessons focused on the following AITC Specialty Crop lessons: These Roots Run Deep (now titled Oklahoma Roots and Leafy Greens); To-may-to, To-mah-to, Po-tay-to, Po-tah-to (now titled The Nightshades); Field of Beans; Marvelous Melons (now titled Melon Madness); Pumpkins, Squash, and Other Cucurbits; Oklahoma's Berry Best; An Apple a Day; Fruit or Vegetable; Good Grapes; Just Peachy; Pairing up with Pears; Pecan Fingerprints; Pumpkins by the Pound; A Tough Nut to Crack; and Working Watermelon.

Each of these SMARTBoard lessons is featured on the AITC website at [www.agclassroom.org/ok](http://www.agclassroom.org/ok) under the "Additional Resources" tab. They are also all found on the Smart Exchange website at [www.exchange.smarttech.com](http://www.exchange.smarttech.com). Smart Exchange is a popular website used by educators around the world. As a result of putting the lessons on this website, educators and students from all around the world can now learn about the importance of specialty crops grown in Oklahoma. In 2013, AITC Staff found that the lessons had been downloaded 643 times by educators. The final number of downloads for the lessons on both the AITC and Smart Exchange websites combined was at least 4,584 downloads!

Ag in the Classroom Staff also created a survey to poll teachers who used the AITC SMARTBoard lessons. The survey was featured on the AITC website and Facebook page. The survey asked the following questions:

- 1- Do you use AITC SMARTBoard lessons? 85.71% of respondents answered "Yes"
- 2- After using your first AITC SMARTBoard lesson, did you download more lessons? 100% of respondents answered "Yes"
- 3- How many AITC SMARTBoard lessons do you use each year? 66.67% of respondents use more than 10, 33.33% of respondents use less than 10
- 4- After using the AITC fruit or vegetable SMARTBoard lessons, would you say student's visual recognition of fruits and vegetables increased? 91.67% of respondents answered "Yes"
- 5- After using the AITC fruit or vegetable SMARTBoard lessons, did student's consumption of Fruit or vegetables increase? 81.82% of respondents answered "Yes"

Oklahoma Ag in the Classroom Staff believes that the results of the survey show that the usage of the specialty crop SMARTBoard lessons made a definite positive impact on the students who used them. Also, the number of lessons downloaded show that the lessons were widely used and are continuing to educate students and teachers about specialty crops that are grown in Oklahoma.

### **Beneficiaries:**

By uploading the SMARTBoard lessons to Smart Exchange, the number of teachers and students who used the lessons increased beyond the expected outcome. The lessons were downloaded more than 4,584 times. The Smart Exchange website does not report how many of these were unique downloads versus repeat downloads. So, it is hard to determine exactly how many students were impacted. However, if we presume that all downloads were unique and that the classrooms represented contained an average of 20 students, the result would be 91,680 students impacted. The financial impact of that many students learning about specialty crops and the survey results that 81.82% of students increased their consumption of fruits and vegetables would mean an increase in sales of specialty crops in Oklahoma and across the nation.

### **Lessons Learned:**

The original plan for this grant was to recruit 20 teachers to create SMARTBoard lessons. The AITC staff thought this would be easy to accomplish because teachers can always use extra money. However, this proved to be a challenge because they also do not want to give up their free time to create SMARTBoard lessons. Creating these lessons is time consuming and requires creativity. Fortunately, the staff was able to find seven teachers who were willing to create several lessons each, so the original number of lessons was accomplished and exceeded.

In the original grant proposal, the Expected Measurable Outcomes were to 1) increase the student's recognition of specialty crops by 10%, 2) increase student's consumption of specialty crops, and 3) increase visitors to the AITC website by 5%. After beginning the grant implementation, the staff realized these measures were going to be difficult to report. Therefore, the measures were adjusted using the survey questions mentioned above and the number of downloads of the SMARTBoard lessons. The survey results did show that student's recognition and consumption of specialty crops increased and the number of downloads of the lessons show that they were widely used.

Overall, the AITC Staff are pleased with the outcomes of this grant. The completed lessons are being used to educate students about agriculture and students are now better able to visually identify specialty crops and have increased their consumption.

### **Contact Person:**

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### **Additional Information:**

N/A

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**Appendix A: Expanding the Oklahoma Grape and Wine industry positively and Progressively**

# Expanding the Oklahoma Grape and Wine Industry Positively and Progressively

The Oklahoma commercial Grape and Wine Industry is currently comprised of more than 200 small businesses adding value to Oklahoma through rural economic development and diversity, specialty crop agriculture, agri-tourism and social quality of life. As an organization representing 90% of the commercial Grape and Wine Industry, the Oklahoma Grape Industry Council and its members are focused on goals and objectives, which will result in growth and stability in the industry. OGIC members have developed priorities, which will ensure industry growth through shared educational, marketing and governmental goals.

## EDUCATIONAL GOALS

- Expanding classes at OSU to include Grape and Wine Quality Improvement.
- Overcoming Wine Credibility Issues.
- Enhancing Communication.
- Assisting New Growers and New Wineries with Grants.
- Introducing Wine Clubs through Training Classes.

## MARKETING GOALS

- Improving Ties to the Wine Industry and Among Oklahoma Wineries.
- Assisting Winemakers with Fee Grants for Wine Competitions.
- Facilitating Oklahoma Grape Marketing.
- Identifying and Communicating Sources for Vineyard Labor and Management.
- Implementing and Promoting Direct Shipping, Wine Clubs.
- Expanding to Include Multiple Tasting Rooms.
- Increasing Sales Share from 2% to 5% in the Next 5 Years.

## GOVERNMENTAL GOALS

- Gaining Reduction in Self-Distribution License Fee.
- Achieving Parity in Taxes, Licensing Costs and Fees.
- Organizing Grass Roots Efforts Where All Members Participate.
- Implementing Direct Shipping.
- Expanding to Include Multiple Tasting Rooms.
- Increasing Sales Share from 2% to 5% in the Next 5 Years.
- Continuing to Create an Environment in Oklahoma Government, which Encourages and Assists Small Winery and Vineyard Businesses.



# Economic Impact

Oklahoma Grape  
and Wine Industry

*Data collected & prepared by Frank, Rimerman + Co. LLP*



# Vineyard & Winery Impact

- Frank, Rimerman + Co. LLP of St Helena, California, recognized as the leading research source on the U.S. wine industry, conducted the Oklahoma Grape and Wine Industry Economic Survey using the latest year of complete information – 2010.
- This survey was commissioned by the Oklahoma Grape Industry Council, LLC, a non-profit representing 90% of the commercial Grape and Wine Industry using a Specialty Crop Block Grant from USDA through the Oklahoma Department of Agriculture.
- The modern Oklahoma Grape and Wine Industry has surged from 3 Wineries in 2000 when passage of State Question 688 established winery tasting rooms, to 38 Wineries in 2005, to 51 in 2010, to more than 62 today. That's a 1,600% increase in the number of Wineries in the last 10 years.
- Although the Oklahoma Grape and Wine Industry is still in its infancy, the state ranks 31st largest in wine production. The vast majority (95%) of Oklahoma Wine sales are direct to the consumer in tasting rooms and at festivals and trade shows.
- There are approximately 139 commercial vineyards operating 439 acres of bearing age grape vines in Oklahoma. The demand for wine grapes in Oklahoma far exceeds the supply.
- Oklahoma's Grape and Wine Industry is valued at \$98.5 million in economic impact to the state and is comprised of more than 200 mostly rural small businesses. Unlike many industries, once vineyards and wineries are established, they are effectively rooted and tied in place.

# Economic Impact for Oklahoma

<b>Total Oklahoma Impact</b>	<b>\$98.5 million</b>
<b>Full-time Equivalent Jobs</b>	<b>840</b>
<b>Wages Paid</b>	<b>\$23 million</b>
<b>Wine Produced (Cases)</b>	<b>30,000</b>
<b>Retail Value of Oklahoma Wine Sold</b>	<b>\$4 million</b>
<b>Vineyard Revenue</b>	<b>\$311,000</b>
<b>Number of Wineries</b>	<b>51</b>
<b>Number of Grape Growers</b>	<b>139</b>
<b>Grape-Bearing Acres</b>	<b>490</b>
<b>Wine-Related Tourism Expenditures</b>	<b>\$13 million</b>
<b>Number of Wine-Related Tourists</b>	<b>134,000</b>
<b>Taxes Paid: Federal / State and Local</b>	<b>\$6 million / \$5 million</b>

(Economic impact information generated by Frank, Rimerman + Co. LLP.)

# Support OGIC Vineyards & Wineries

Arlington Vineyard • Base Vine and Cattle Company • Battle Creek Winery and Vineyard • Bobby Sloan Vineyard • Brio Cellars • Broken Spoke Ranch Vineyards Canadian River Vineyard and Winery • Chapel Creek Winery • Claren Ridge Vineyard and Winery • Clifton Vineyard • Coffee Creek Vineyard • Davis-Ham Vineyards Dripping Springs Vineyard • Farfalla Wines • Fenton Vineyards • Ganderway Vineyards and Winery • Girls Gone Wine • Greenfield Vineyard and Winery • Hadaway Vineyards Indian Creek Village Inn and Winery • Ingels Vineyard, LLC • King's Vineyard Native Spirits Winery • Nellis Vineyards • New Moon Vineyard • Nuyaka Creek Winery OSU Perkins Vineyards • Paleogathering Vineyard • Panther Hills Winery • Plain View Winery • Plymouth Valley Cellars • Pond Creek Vineyard • Red Hills Winery and Vineyard • Redbud Ridge Vineyard and Winery • Rivergate Vineyard • Roberdes Family Vineyards and Winery • Scissortail Vineyard • Silvertop Farm and Vineyard Smokin Grapes Vineyard • Stableridge Vineyards • Stone Bluff Cellars • Strebel Creek Vineyard • The Grape Junction Winery • The Range Vineyard and Winery • The Rusty Nail Winery • Tres Suenos Winery • Triple R Vineyard • Twisted Vine Vineyards Waddell Estate Vineyards • Wakefield Winery • Whirlwind Winery • Whispering Meadows Vineyards and Winery • Willow Pond Vineyard • Windmill Winery • Windy Lanes Vineyard • Woodland Park Vineyards • Woods & Waters Winery and Vineyard

[www.ogic.info](http://www.ogic.info)



**Appendix B: THE ECONOMIC IMPACT OF OKLAHOMA WINE  
AND VINEYARDS – 2010**

# THE ECONOMIC IMPACT OF OKLAHOMA WINE AND VINEYARDS – 2010

**A Frank, Rimerman + Co. LLP Report**

**May 2012**

This study was commissioned by the

**Oklahoma Grape Industry Council**

**Frank, Rimerman + Co. LLP**

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[www.frankrimerman.com/businesses/business\\_management/wine\\_research.asp](http://www.frankrimerman.com/businesses/business_management/wine_research.asp)

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FULL ECONOMIC IMPACT OF OKLAHOMA  
WINE AND VINEYARDS -- 2010

**\$98.5 Million**

<b>OKLAHOMA WINE AND VINEYARDS</b>	<b>2010 ECONOMIC IMPACT</b>
Full-time Equivalent Jobs	840
Wages Paid	\$23 million
Wine Produced (Cases)	30,000
Retail Value of Oklahoma Wine Sold	\$4 million
Vineyard Revenue	\$311,000
Number of Wineries	51
Number of Grape Growers	139
Grape-Bearing Acres	490
Wine-Related Tourism Expenditures	\$13 million
Number of Wine-Related Tourists	134,000
Taxes Paid: Federal / State and Local	\$6 million / \$5 million

# ECONOMIC IMPACT OF OKLAHOMA WINE AND VINEYARDS

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**Table 1<sup>1</sup>**  
**Total Economic Impact of Wine and Vineyards in Oklahoma**

<b>Revenue:</b>	<b>2010</b>
Winery Sales	\$4,081,000
Retail and Restaurant Sales of Oklahoma wine	\$136,000
Distributors Sales	\$40,000
Non-Wine Revenue (Weddings, Events, etc.)	\$603,000
Tourism	\$12,953,000
Wine Grape Sales	\$311,000
Federal Tax Revenue	\$5,833,000
State Tax Revenue	\$4,911,000
Vineyard Development (excluding vines)	\$1,446,000
Charitable Contributions	\$43,000
Allied Industries -- Glass, Labels, Chemicals	\$327,000
Wine Research/Education/Consulting	\$431,000
Indirect (IMPLAN)	\$30,899,000
Induced (IMPLAN)	\$13,811,000
<b>Total Revenue</b>	<b>\$75,825,000</b>
<b>Wages:</b>	
Winery Employees	\$1,369,000
Vineyard Employees	\$1,698,000
Tourism	\$3,761,000
Vineyard Development and Materials - Labor	\$217,000
Distributors Employees	\$12,000
Retail/Liquor Stores - Wine Specific	\$5,000
Restaurant Sales of Oklahoma Wine	\$108,000
Allied Industries -- Glass, Labels, Chemicals	\$203,000
Wine Research/Education/Consulting	\$391,000
Indirect (IMPLAN)	\$10,553,000
Induced (IMPLAN)	\$4,327,000
<b>Total Wages</b>	<b>\$22,645,000</b>
<b>Total</b>	<b>\$98,470,000</b>

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<sup>1</sup> Based on 2010 data and includes a small production of grape juice.

**EXECUTIVE SUMMARY**

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**IMPACT OF WINE AND VINEYARDS ON THE OKLAHOMA ECONOMY**

The Oklahoma wine industry experienced significant growth in the number of wineries and increased demand of Oklahoma wine since 2000. The number of bonded wineries in the state of Oklahoma grew from 3 in 2000 to 51 in 2010. The industry continues to expand with all of the growth coming from the addition of small wineries – wineries producing less than 5,000 cases per year. Wine production in Oklahoma was over 71,000 gallons, ranking Oklahoma as thirty first in the nation in wine production. Additionally, the state produced a very small amount of grape juice (less than 2,000 gallons) as only one winery responded that they produced juice as well as wine.

The wine and grape industry in Oklahoma contributed greatly to the economic strength of the state. Oklahoma’s wine, grape and related industries had a total economic value to the state of Oklahoma of \$98.5 million in 2010. As the number of Oklahoma wineries increases, so will the number of tourists visiting them. We estimate that roughly 134,000 people visited Oklahoma wineries in 2010. Wine, grapes and related industries account for 840 jobs in Oklahoma with an associated payroll in excess of \$22 million. As shown below, the majority of these jobs were in the actual wineries and vineyards, but also in the tourism industry.

**Table 2**  
**Total Oklahoma Employment: Wine, Grape and Related Industries**

<b><u>Employment:</u></b>	<b><u>2010</u></b>
Winery	120
Vineyard	163
Tourism	156
Vineyard Materials	8
Restaurants/Distributors/Retail	7
Allied Industries -- Glass, Closures, Chemicals	8
Research/Education/Consulting	10
Indirect (IMPLAN)	243
Induced (IMPLAN)	125
<b>Total Employment</b>	<b><u>840</u></b>

Sources: Frank, Rimerman + Co. Research, IMPLAN, Oklahoma State University, Oklahoma Grape Industry Council, Bureau of Labor Statistics and various Oklahoma wineries, consultants and suppliers surveyed.

**TOTAL TAXES COLLECTED**

The wine and wine grape industry generates significant tax dollars, benefiting federal, state and local governments. Tax dollars are raised through sales taxes, excise taxes, income taxes, estate and gift taxes, payroll taxes, property taxes and other business taxes and fees. Oklahoma’s wine, grape and allied industries paid \$6 million in federal taxes and \$5 million in state and local taxes and in 2010, including roughly \$500,000 in total excise taxes.

**Table 3**  
**Estimated Tax Revenues**

<u>Type of Tax</u>	<u>Total</u>
<b>Federal Tax Revenues</b>	
Excise	\$394,000
Payroll	\$2,473,000
Income	\$1,173,000
Other (corporate profits, etc.)	\$1,794,000
Total Federal Tax Revenues	\$5,833,000
<b>State Tax Revenues</b>	
Excise	\$108,000
Sales	\$2,152,000
Payroll	\$391,000
Property	\$1,053,000
Other (dividends, licenses, fines, fees, etc.)	\$1,207,000
Total State Tax Revenues	\$4,911,000
<b>Total Tax Revenues</b>	<b>\$10,744,000</b>

**TOURISM**

Tourism continues to be a material factor in the Oklahoma wine and grape industry’s overall impact on the broader state economy. Our survey of Oklahoma wineries estimates that close to 134,000 tourists visited Oklahoma wineries in 2010. Supporting these winery visitors is a diverse labor force of approximately 156 employees with total wages of roughly \$4 million. The continued increase of tourist visits over the past several years can be attributed to the increase in the number of Oklahoma wineries and continued improvement in wine quality, providing more destinations and opportunities for visitors to experience Oklahoma wine country.

The state’s overall wine sales and production are not concentrated within a few large wineries; rather the majority of the state consists of small wineries with production under 5,000 cases. There are very few wineries that sell wine through the three-tier system as the majority of the wineries sell their wine direct-to-consumer and through their tasting room and various wine events and festivals.

Wine tasting tours are being widely promoted with positive sales results. In order for the industry to continue growing and attracting new visitors, wineries not only need to continue focusing on improving wine quality, but consider expanding into more wine-related events like private parties, weddings, and festivals held on winery properties. Some existing wineries have expanded their facilities to incorporate these additional revenue streams resulting in increased winery employment and support services, and increased rural economic development.

Some wineries we surveyed in Oklahoma incorporated these new functions with traditional facilities to take full advantage of these profitable ancillary activities. By our estimation, based on direct feedback from the wineries we surveyed, there was over \$600,000 in revenue generated from these wine-related events.

### **WINE PRODUCTION AND SALES**

Growing grapes and making wine is a long-term commitment to a community, both financially and physically. New vineyard plantings require three to five years before yielding a full crop, with another one to three years of aging for wine to be ready for sale. Unlike many industries, once vineyards and wineries are established they are effectively rooted and tied in place – an Oklahoma vineyard cannot simply be relocated to another region or outsourced to another country. Wine and grapes are inextricably tied to the soil from which they are grown. Moreover, wine and their products and allied industries diversify local economies and create employment and new market opportunities.

In 2010, there were 51 wineries in Oklahoma still producing wine, up 24% from 38 wineries in 2005. By our account, every winery had sales under 5,000 cases annually. Total wine produced in Oklahoma was 71,313 gallons, roughly 30,000 cases.

Based on our research and interviews with winery owners, wineries in Oklahoma provided employment for 120 full-time equivalent jobs in 2010, with a payroll totaling approximately \$1.4 million. Wineries employ full and part-time workers for bottling, storage, maintenance and winemaking needs in addition to the traditional hospitality (tasting room), finance, sales and marketing functions. Many wineries also employ seasonal workers, particularly during harvest season.

**Table 4**  
**Trend of Growth in Oklahoma Wineries**

Year	Wineries	% Growth
2010	51	24%
2008	41	8%
2005	38	1167%
2000	3	50%
1986	2	NA
1959	0	NA

Source: Oklahoma Agritourism

All of Oklahoma wineries are considered small producers, producing less than 5,000 cases. In fact, only four wineries we spoke with produced wine in excess of 2,000 cases in 2010. Based on the data we received directly from the wineries and extrapolating for data we did not directly receive, approximately 75% of the wine produced in Oklahoma in 2010 was made from grapes grown in Oklahoma. The growth of wineries in the state has so far kept pace with the growth of overall grape production as well as the increased demand for wine in state.

In 2010, Oklahoma was one of the smaller wine producers in the United States at 31 out of 50 states (all states have at least one winery). That being said, the number of new wineries producing wine in Oklahoma increased dramatically in the last ten years (a 1,600% increase). Oklahoma's increased number of wineries can be partially attributed to increased tourist visitors throughout the state. In order to continue growing production and attracting interest from visitors and wine consumers in general, the state's wineries need to continue focusing on improving their winemaking and vineyard practices to keep pace with the overall wine industry at large.

**Table 5.1**  
**Top States' Annual Gallons Produced in 2010**

Rank	State	Total Produced (Gallons)	% of Total
1	California	628,199,026	89.51%
2	New York	26,704,955	3.81%
3	Washington	20,390,040	2.91%
4	Oregon	4,913,035	0.70%
5	Kentucky	2,247,492	0.32%
6	Florida	2,018,975	0.29%
7	New Jersey	1,543,513	0.22%
8	North Carolina	1,204,937	0.17%
9	Missouri	1,110,670	0.16%
10	Ohio	1,108,851	0.16%
11	New Mexico	1,071,512	0.15%
<b>31</b>	<b>Oklahoma</b>	<b>71,313</b>	<b>0.01%</b>
---	Others	11,309,500	1.61%
	<b>Total U.S.</b>	<b>701,822,506</b>	<b>100.00%</b>

Source: [www.ttb.gov](http://www.ttb.gov)

As mentioned earlier, virtually all of Oklahoma's wine is sold directly to consumers. Less than 10% of the wine volume produced in Oklahoma is distributed through the three-tier distribution system, of which only the larger Oklahoma wineries use. Since wineries generate significantly more margin selling direct, we anticipate Oklahoma wineries will continue to focus their selling efforts on this channel in the near-term. As the industry and the state's production increase in the future, we believe more wine will have to be sold through the three-tier system to both satisfy consumer demand as well as try to reach new Oklahoma consumers.

The retail value of Oklahoma wine sold in 2010 is estimated at \$4.3 million with actual sales generated by the wineries themselves totaling \$4.1 million, which include sales to consumers in the winery tasting rooms, wine clubs, winery mailing lists and e-commerce/Internet sales. Retail, restaurant and distributor sales were only \$0.2 million in 2010. In addition, excluded from all of these figures was the additional \$600,000 generated in non-wine revenue associated with wineries hosting special events/weddings and selling various merchandise on-site.

**GRAPE PRODUCTION**

In 2010, there were approximately 139 commercial growers operating in Oklahoma with a combined acreage of 490 bearing acres. Based on our discussions with wineries, vineyard owners and industry professional, it appears several vineyards closed in recent years as yields and crop value have varied dramatically. We estimate that the average yield in Oklahoma over the past three years was one to one and a half tons of grapes per planted acre. Given the harsh climate in this part of the country, low yields are not entirely uncommon; however, If Oklahoma is to gain traction and continue producing enough wine in state to meet consumer demand, the industry will need to try to improve yields going forward, if possible, and also continue increasing the available grape-bearing acreage. As shown below, Oklahoma is not in the top ten in the United States in terms of grape production or acreage and is in fact one of the country’s smallest producers with less than 500 acres of planted vineyards.

**Table 5.2  
United States Grape Production, 2010**

<u>Rank</u>	<u>State</u>	<u>2010 Total Production (Tons)</u>	<u>2010 Bearing Acreage (all types of grapes)</u>
1	California	6,716,000	789,000
2	Washington	336,000	61,000
3	New York	176,000	37,000
4	Oregon	31,200	16,900
5	Michigan	36,000	14,200
6	Pennsylvania	83,000	13,600
7	Texas	8,900	3,000
8	Virginia	6,600	2,700
9	Ohio	3,470	1,900
10	North Carolina	5,200	1,800
	Others	12,330	6,600
	Total U.S.	7,414,700	947,700

Source: USDA Non-citrus Fruits and Nuts 2011 Summary

Wineries in the State of Oklahoma rely heavily on wine grapes grown in state, which generally contributes to lower costs. By continuing to increase the grape quality and amount of Oklahoma acreage available for grape production, the Oklahoma wine industry can rely less on grapes produced outside the state while in turn building more credibility and a stronger reputation for wine quality as well as potentially reducing costs.

## **VINEYARD DEVELOPMENT**

Vineyard development is the process of converting land into a developed vineyard. The land must be prepared to plant vines. Once the vine is planted it must be trellised and trained, and, from the time a vine is planted in the ground, it can take between three to four years before the vine bears fruit. During this time, pre-productive (non-fruit bearing) vines must be tended and cared for in accordance with sound viticultural practices to ensure healthy productive (fruit bearing) vines.

The vineyard development process is very capital and labor intensive, with development costs for wine grapes in Oklahoma averaging approximately \$9,000 per acre, excluding land acquisition costs. This approximate cost includes all land preparation, capital improvements, vine layout, planting and trellising, vines, irrigation, materials and equipment, farming costs, direct and allocated overhead, utilities, property taxes, and financing costs during the pre-productive period. In addition, we also surveyed all vineyard owners what their annual maintenance costs were per vineyard. The average maintenance cost was approximately \$3,000 per vineyard. This includes any capital improvements made to each vineyard.

The most important determinant of the cost of planting a vineyard is the vine spacing. Grape growing regions use various vine spacing based upon environmental site attributes, desired grape flavors, and development cost considerations. Regardless of the ultimate development plan selected, the investment in terms of capital and time required is significant. Vineyard owners and their employees do the majority of vineyard development in Oklahoma, with the assistance of vineyard development consultants in some cases.

## **VINEYARD EMPLOYMENT**

Larger Oklahoma wineries reported utilizing both full-time and seasonal vineyard employees. Often grape production uses seasonal labor for harvests and vineyard development and full-time positions for maintenance of currently-bearing acres and development of new vineyards yet to bear fruit, as well as both full and part-time staff for finance, sales and other business management functions.

However, most grape growers in Oklahoma manage smaller vineyards and can do so without outside labor. Based on our research, the average vineyard size was approximately three acres for all vineyards, including those owned and operated by both wineries and independent grape growers. Based on surveys with wineries and vineyard owners, approximately 163 full-time equivalent workers were employed in the vineyards in both a development and ongoing vineyard maintenance/development capacity for a total payroll of approximately \$1.9 million in 2010.

## COMMUNITY SUPPORT

Based on our estimates, wineries and growers throughout the state of Oklahoma have donated approximately \$43,000 to charities in 2010 (1% of total wine sales), including gifts of wine and gift certificates. The amount of charitable contributions is likely underestimated as many wineries do not track in-kind contributions, which can be substantial. However, the majority of the wineries we spoke with described their charitable contributions as usually being in-kind donations of wine, tasting/tours and the like.

## WINEMAKING EQUIPMENT, SUPPLIES AND SERVICES

The number of in-state suppliers or distributors of winemaking equipment, supplies and services is relatively small. Many different types of small businesses exist in Oklahoma that supply the wine and wine grape industry as a portion of their overall business. They include bottle suppliers, farming chemical providers and label producers. As the Oklahoma wine industry continues to grow, so will the number of ancillary businesses that supply the industry.

**Table 6**  
**Oklahoma Winemaking Suppliers for Oklahoma Wine**

Direct Employment	8 employees
Total Wages	\$203,000
Total Revenue	\$327,000

Source: Frank, Rimerman + Co. LLP

## EDUCATION, CONSULTING AND WINE INDUSTRY RESEARCH

Approximately ten people were employed on a full time basis in Oklahoma in wine-related education, consulting and research, with a payroll of roughly \$391,000.

**Table 7**  
**Impact of Wine-Related Education, Consulting and Research**

Direct Employment	10 employees
Total Wages	\$391,000
Total Funding	\$431,000

Source: Frank, Rimerman + Co. LLP, Oklahoma State University, Redlands Community College and Oklahoma Grape Industry Council.

### **SUPPORT BY STATE AND REGIONAL ORGANIZATIONS**

State and regional organization support is critical to the success of the renewed industry. Oklahoma's state, regional and private organizations are becoming more effective and organized at supporting and promoting the local wine industry. These organizations include the Oklahoma Grape Industry Council and the Oklahoma Grape Growers and Wine Makers Association.

In order for the Oklahoma wine industry to continue growing, it is critical wineries and all associated organization and vendors receive significant support from the state and local governments, particularly with funding dollars that will enable better marketing of the industry as a whole. In addition to improving winemaking and vineyard practices, it is this kind of financial support that will help the industry's growth better reflect that of many of its neighboring states.

### **A CONSERVATIVE MEASURE OF VALUE**

Statistics alone do not adequately measure the intangible value the wine industry brings in terms of overall enhanced quality of life, limitation of urban sprawl and greater visibility for the state of Oklahoma worldwide. Accordingly, the figures provided in this report should be viewed as a conservative baseline measure of the economic impact, as the true impact of the Oklahoma wine industry, including intangible benefits is much greater. That measure of economic impact is approximately \$98 million within the state of Oklahoma, for an industry that is a unique partnership of nature, entrepreneurship, artistry and technology.

Oklahoma wine and wine grape producers face sizable challenges to their continued growth and success. Working to support the Oklahoma wine industry and to ensure its long-term success will protect the significant benefits the industry provides to the Oklahoma economy.

## METHODOLOGY

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### DATA COLLECTION

Data for this study was collected from a variety of public sources supplemented by primary research with wineries, suppliers, growers and other economic entities and supported by a variety of studies undertaken by industry and professional organizations. For several data items the numbers provided are only partial, given the limited availability of information, and therefore are considered conservative.

### DIRECT, INDIRECT AND INDUCED EFFECTS (IMPLAN)<sup>2</sup>

All economic activities have “ripple” effects: employment of one person creates economic activity for others, whether the salesman who sells the employee a car or the restaurant where she eats lunch. Economic impact studies endeavor to measure those “ripples” as well as the direct activity, to help assess the impact of the potential gain or loss of an industry.

Economic impact studies estimate the impact of an industry in a defined geographic region by identifying and measuring specific concrete and economic events, such as the number of jobs, the wages, taxes and output generated by each job.

IMPLAN<sup>2</sup> is the acronym for “**IM** impact analysis for **PLAN**ing.” IMPLAN is a well established and widely used economic model that uses input-output analyses and tables for over 500 industries to estimate these regional and industry-specific economic impacts of a specific industry.

The IMPLAN model and methodology classifies these effects into three categories, Direct Effects, Indirect Effects and Induced Effects.

Direct Effects are economic changes in industries *directly* associated with the product’s final demand. Thus, direct effects consider the direct employment and spending of wineries, vineyards, distributors and immediately allied industries.

Indirect effects are economic changes – income created through job creation in industries that supply goods and services to the directly affected industries noted above. For example, the purchases of electricity and gasoline by wineries and of cash registers purchased for a tasting room.

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<sup>2</sup> IMPLAN is the standard economic model for economic impact studies, developed by the University of Minnesota and the US Forestry Service in the 1980s and currently used by over 1,500 organizations, including most federal, state and local organizations. For more information on IMPLAN, go to [www.implan.com](http://www.implan.com).

Induced effects are the effects of these new workers spending their new incomes, creating a still further flow of income in their communities and a flow of new jobs and services. Examples are spending in grocery and retail stores, medical offices, insurance companies, and other non-wine and grape related industries.

Beginning in late 2009, the Minnesota IMPLAN Group released version 3.0 of its flagship IMPLAN software product, which makes it possible to include Trade Flows in an impact analysis. We used this latest version with its increased functionality to produce this report.

## **ABOUT FRANK, RIMERMAN + CO. LLP**

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Frank, Rimerman + Co. LLP is the leading research source on the U.S. wine industry. We continue to strive to raise the bar on the quality of information and analysis available to the wine industry.

Frank, Rimerman + Co. LLP produces original research on the business of wine and wine market trends, publishes a number of industry studies and provides business advisory services and conducts custom business research for individual companies and investors.

## **FRANK, RIMERMAN + CO. LLP PUBLICATIONS**

### ***Grape Trends***

By combining the annual crush and acreage reports into one easy-to-use quick reference guide, Grape Trends provides, in one source, all the information needed to make informed decisions about California's grape supply for production planning. Provided in electronic form, Grape Trends includes a complete summary of current, past (since 1997) and projected tons, prices, and bearing acres for all of California's major grape growing regions and counties for all varieties recorded, including: Chardonnay, Sauvignon Blanc, Cabernet Sauvignon, Merlot, Syrah, Zinfandel, and Pinot Noir.

### ***Grape Price Analysis Tool***

The Grape Price Analysis Tool enables users to take a deep dive into the California Grape Crush Report and analyze estimated bottle prices in relation to tonnage prices. The tool makes the data from the Crush Report easy to access and provides actionable results to help determine tonnage prices based on an estimated finished bottle price.

### ***Economic Impact Reports***

Frank, Rimerman + Co. LLP completed the first study of the Impact of Wine, Grapes and Grape Products on the American Economy for Wine America, the Wine Institute, Winegrape Growers of America and the National Grape and Wine Initiative, as well as economic impact studies for California, Illinois, Iowa, Michigan, Missouri, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Texas, Virginia and Washington.

## ECONOMIC IMPACT OF OKLAHOMA WINE AND VINEYARDS

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Recent Economic Impact Studies and Updates published by Frank, Rimerman + Co. LLP include the following, all available for purchase from Frank, Rimerman + Co. LLP:

- Economic Impact of Virginia Wine and Vineyards 2010
- Economic Impact of Texas Wine and Vineyards 2009
- Economic Impact of Wine and Wine Grapes in North Carolina 2009
- Economic Impact of Wine and Wine Grapes in Iowa 2008
- Economic Impact of Wine and Wine Grapes in Ohio 2008
- Economic Impact of Wine and Wine Grapes in Illinois 2007
- Economic Impact of Pennsylvania Wine and Grapes 2007
- Economic Impact of Wine and Grapes on the State of Texas 2007
- Economic Impact of Wine and Grapes on the Missouri Economy 2007
- Economic Impact of Wine and Wine grapes in Tennessee 2007
- Impact of Wine, Grapes and Grape Products on the American Economy, 2007
- Economic Impact of California Wine 2006
- Economic Impact of Washington Grapes and Wine 2006
- Economic Impact of Wine and Wine Grapes in North Carolina 2005
- Economic Impact of Wine and Wine Grapes in Texas 2005
- Economic Impact of Michigan Grapes, Grape Juice and Wine 2005
- Economic Impact of New York Grapes, Grape Juice and Wine 2005

### ***Frank, Rimerman + Co. LLP***

Frank, Rimerman + Co. LLP, founded in 1949, is the largest, locally-owned provider of accounting and consulting services in California. With offices in San Jose, Palo Alto, San Francisco and St. Helena, California, New York, NY and over 200 professionals, Frank, Rimerman + Co. LLP offers strategic business and information consulting services, tax consulting and planning, audit and financial reporting, accounting services, litigation and valuation services.

Frank, Rimerman + Co. LLP continues to build its wine industry practice, based in St. Helena, CA (formerly the CPA practice of Motto, Kryla and Fisher), committing the full resources of this major professional services firm to the industry.

## Appendix C: Self -Serving a Healthy Lifestyle

# Self-Serving a Healthy Lifestyle

## A Business Model for Rural Farmers to Greenhouse Grow the Oklahoma Farm to School Program



Written by Lisa Kraft of Copper Bear Farms  
A company of



November 2014

This research project was funded through a cost-share Specialty Crop Grant Program award from the United States Department of Agriculture administered by the Oklahoma State Department of Agriculture, Food and Forestry (ODAFF). The ODAFF also awarded an Agriculture Enhancement and Diversification Program grant in support of this project. Copper Bear Farms partnered with Saint Mary's Catholic School of Guthrie, Oklahoma to implement a Farm-to-School Program with educational assistance provided by Oklahoma Agriculture in the Classroom.



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## ACKNOWLEDGMENTS



**Red Cross: heat tolerant butterhead growing at Copper Bear Farms**

We thank the Oklahoma Department of Agriculture, Food and Forestry for the funding opportunity under the Specialty Crop Grant Program (SCGP). Jason Harvey, ODAFF Agriculture Marketing Coordinator, administered our project for the United States Department of Agriculture. Mr. Harvey also administered our state 2013 Agricultural Enhancement and Diversification Program (AEDP) grant for our greenhouse.

We were fortunate to plan our AEDP application with Steve Upson, Agricultural Consultant at Sam Roberts Noble Foundation in Ardmore, Oklahoma. Upson has inspired us to pursue more sustainable greenhouse construction design and water vegetable growing systems. Brenda Sanders of Stillwater first referred Mr. Upson to us.

Thank you to Chris Kirby who was extremely reliable with up-to-date news about the ODAFF Farm to School Program and the new Farm to School Program Manager, Katie Kovar-Strack for her participation in our first school field trip. We

also thank Audrey Harmon, ODAFF Agriculture in the Classroom, who presented St. Mary's teachers with numerous free student and classroom teaching aids as well as demonstrated where to locate online Farm to School curriculum.

Thank you to Courtney McLemore and Justin Fortney of the Logan County Health Department for allowing us to bounce ideas to better the health of our local community. Courtney has many ideas for local marketing and networking. We also thank Krista Neal, Director of Child Nutrition Services of Stillwater Public Schools for her assistance with comments on our 2011 SCGP grant application for this project.

A great big thank you to Jacque Cook, Principal of St. Mary's Catholic School of Guthrie and Mary Humpal, St. Mary's Cafeteria Manager/Cook. These women are compassionate about the total well-being of St. Mary's children. We also thank the teachers and students for their participation in the school garden, trying new vegetables for lunch, and for recycling their food for our pigs. Thank you to Mr. Robert Anderson and his Fifth Grade Class at St. Mary's for being our first student farm tour and taste testers. Thanks also to Lisa Reese, St. Mary's Physical Education teacher, for weaving farm-style exercises into her classes.

Thank you to Janine Bradley, Owner of Organics OKC Garden Supply, for sharing hydroponic growing tips and her contacts to expand our research network. She also gave us the idea to ask for corporate support. Thank you to Grodan for their donation of rockwool starter cubes to keep our seed germination research active.

And finally, a heartfelt thank you to our boys, Conrad and Justin, for their work in our traditional garden (weeding and harvesting) and in the greenhouse by cleaning channels, hosting farm visits, and showing kids that eating vegetables is cool.



## 1. SELF-SERVING A HEALTHY LIFESTYLE: A GREENHOUSE MODEL

### INTRODUCTION

This business model or greenhouse business idea came about in 2011 after Copper Bear Farms and Ranch co-owner, John Adams, found a notice in the Guthrie newspaper. The Oklahoma Department of Agriculture, Food and Forestry (ODAFF) was accepting proposals from small farmers to research how to grow and sell specialty crops in Oklahoma. Like most farming families, we believed that we could grow enough vegetables to feed our family and many more. We decided to go into greenhouse growing to coincide with the school year and grow lettuce for school salad bars. John and I are in construction and federal grant and contracting, respectively, in our full-time jobs, so we proposed using our experiences to document the costs of building a permanent greenhouse, describe our lettuce growing system, and research the barriers of selling to local schools. The "self-serve" in the project title was originally meant for self-serving at a school salad bar but, after our research, the meaning transformed into "self-serving a healthy lifestyle" by making better food choices.

Oklahoma farming and ranching is a way of life in Guthrie, Oklahoma. Copper Bear Farms and Ranch is one of over 1,200 farms in Logan County, Oklahoma (See 2007 Census of Agriculture in Attachment 1). Of the agricultural products sold here, about 18% are from crops (\$8,888,000) and 82% are from livestock (\$39,905,000). Copper Bear Farms and Ranch raises longhorn for a specialty beef market in addition to raising vegetable crops and harvesting wild blackberries and sand plums in the summer. We operate our farm as a side business with the two of us working as needed.

Our Specialty Crop grant project took two and a half years and cost over \$160,000. The state grant paid fifty percent of the project costs. This particular grant only funds projects that can provide measureable outcomes for any specialty crop grower---not just the individual. It is a research grant not a capital development grant, although, it does lead to farming diversification and potential revenue. Before we pitched our ideas to the state, we knew our target market would be local schools. We had learned of the Farm to School Program while researching and are enthusiastic about finding ways to teach children to eat healthier and get active. We are blessed to have formed a Farm to School

partnership with St. Mary's Catholic School of Guthrie, Oklahoma (<http://stmarysguthrie.eduk12.net>).

Today, our three-bay commercial greenhouse (8,640 SF) is built, but only one bay (30 FT x 96 FT) is producing. We are growing over 3,000 heads of lettuce in a hydroponic (water) system. The lettuce demands of St. Mary's are minimal, so we have not expanded into the other two bays yet. We have been able to successfully grow over 20 different varieties of leafy greens indoors with outdoor temperatures as high as 96 degrees and as low as 19 degrees.

We now know the costs and requirements for local farmers to build permanent greenhouses and systems to grow during school months. We also know principals and teachers need the help of local farmers to teach about healthy eating, the science of growing food, the value of local economies and practicing family sustainability. We had originally thought schools were unable to buy from local farmers. We also thought the Federal requirements of the National School Lunch Program (NSLP) would be a barrier to buying local. We found that St. Mary's is eager to work with local farmers, but cost is the number one factor keeping them with a distributor rather than buying produce from local farmers.

## FUNDING

In April 2011, Copper Bear Farms ([www.CopperBearFarms.com](http://www.CopperBearFarms.com)) applied to the Oklahoma Department of Agriculture, Food and Forestry (ODAFF) for a Fiscal Year (FY) 2011 Specialty Crop Grant Program (SCGP) research grant. We received our purchase order from the state in March 2012. Oklahoma received \$379,000 of a \$49 million Federal block grant to states from the United States Department of Agriculture (USDA), Agricultural Marketing Services (AMS). This grant is open to all small producers/farmers. In Oklahoma, visit ODAFF at <http://www.oda.state.ok.us>.

ODAFF SCGP research projects can last up to three years and require a 25% cash and/or in-kind match by the person/farm proposing the project. We matched our project at fifty-percent. SCGP projects must "**enhance the competitiveness of specialty crops.**" Projects can range in topic from industry development, child nutrition, testing growing systems, research on crops, sustainability practices, crop production, and awareness and consumption of

specialty crops. If you can think of a project that may benefit you as a small farmer and can document your research and results for the specialty crop growers in Oklahoma, you should apply. This particular program prohibits generating revenue from the project during the grant period. Therefore, we do not have actual revenue and expenses to report from selling a product. Everything (lettuce and tomatoes) that we have provided to our project partner, St. Mary's Catholic School of Guthrie, has been at no cost to them.

In January 2012, we also applied to the ODAFF's Agriculture Enhancement and Diversification Program (AEDP) for a grant to expand our family farming operation into the greenhouse growing business. Again, these grants are available to small farmers, but only for a 12-month period. These awards are for diversifying farm income. Requests can be up to \$10,000 and require a dollar-for-dollar match. If selected, you will be required to give a presentation to the ODAFF Review Board. Visit <http://www.oda.state.ok.us/mktdev-loans.htm> for information on this and other grant and loan programs available to small farmers.

Steve Upson, Agricultural Consultant at Sam Roberts Noble Foundation (SRNF) in Ardmore was our ODAFF-AEDP project mentor. He graciously shared his comments on growing leafy greens year-round since he has been researching their growing seasons for some time now. He also recently wrote "High Tunnel Hoop House Construction Guide" as an Agricultural Division Publication of the SRNF (NF-HO-14-01). Upson's construction manual is much more elaborate than our pictorial guide. It is a "must have" for the small farmer considering hoop house construction. In fact, the USDA has a *Seasonal High Tunnel Initiative* that funds up to \$300,000 for farm projects to research extending high value crop production for more months. NRCS accepts application for this cost-share program throughout the year and awards annually through the Environmental Quality Incentives Program (EQIP).

## OBJECTIVES

We went into this research project with three main objectives. **First**, we wanted to know real costs and labor requirements to construct a commercial hydroponic greenhouse and operate it year-round (August through May) to coincide with the food needs of local schools. We felt that small farmers could benefit in knowing the actual costs to build a new structure and system before

they make financing and time commitments. The main deliverable of this project is a working model for other farmers.

The pictorial guide, "Copper Bear Farms' (2014) Greenhouse Construction Project and Costs," is located in Chapter 5. We think many farmers forego the development expense of a commercial greenhouse because it is very hard to cost out the construction in today's market. It is also difficult to learn to grow in another medium, such as hydroponics, when you traditionally grow in dirt. When you also consider the construction expertise required, demands of growing year-round, and then selling and marketing, this kind of business expansion can be quite overwhelming to a family that already has full-time jobs.

**Second**, we wanted to know how to become local Farm to School partners with public and private schools and what barriers may exist to selling to them and our local community. The new national Farm Census reports that over \$385 million has been spent by approximately 40,000 schools to buy local fruits and vegetables (See 2014 Farm to School Census in Attachment 2). We wanted to know if schools prefer to work only with distributors for convenience or delivery reliability. We also thought there might be problems with schools obtaining the vegetables they need year-round if we only grow one product. We also heard from other parents that public schools are prohibited from purchasing local produce and must use a distributor under state contract. This misinformation is just that. In fact, there is a national campaign underway to change how schools purchase their foods by turning to local farmers. A key publication on this topic is "Procuring Local Foods for Child Nutrition Programs." This guide can be accessed at

[http://www.fns.usda.gov/sites/default/files/F2S\\_Procuring\\_Local\\_Foods\\_Child\\_Nutrition\\_Prog\\_Guide.pdf](http://www.fns.usda.gov/sites/default/files/F2S_Procuring_Local_Foods_Child_Nutrition_Prog_Guide.pdf). A wealth of information can also be found at the USDA Food and Nutrition Service (FNS) website at <http://www.fns.usda.gov/farmentoschool/farm-school>.

We are not the first farmers, by any means, to go into Guthrie schools to promote buying locally and eating healthy, but for some reason, Guthrie, largely a farming and ranching community, is not a leader in the Farm to School initiative. According to Chris Kirby, formerly of the Oklahoma Farm to School Program, Copper Bear Farms is the only grower in Logan County partnering with a local school. Just a few miles from us is Whitmore Farms in Payne County. They sell to Stillwater Public Schools as well as Coyle school district (just a mile to our east). Whitmore Farms was the first farm to participant in the Oklahoma Farm to

School program. Given this local history, Guthrie does not have an active Farm to School program or even a corner fruit stand, for that matter. To see what producers are growing in your area and whether or not they are participating in the Farm to School program, visit the Oklahoma Farm to School website at <http://okfarmtoschool.com>.

**Third**, we wanted to learn what kids are eating and not eating at lunch. This project came about at a time when the National School Lunch Program requirements changed to combat childhood obesity and diabetes by requiring schools to serve twice as many fruits and vegetables and of certain colors. If schools cannot demonstrate each child is receiving the proper serving size and requirements, the school risks losing their Federal meal reimbursement from the state. Oklahoma received over \$153 million dollars last year for meal reimbursements under the National School Lunch Program and another \$16.5 million in delivered cafeteria commodities (See National School Lunch Payouts in Attachment 3).

## TARGET MARKET

There are approximately 44,422 people living in Logan County, Oklahoma with 24% of those people being school age children under 18 years of age (See Logan County QuickFacts – Attachment 4). However, there are only 10,908 people living in Guthrie, Oklahoma in 3,822 households. Copper Bear Farms is located just outside of Guthrie and adjacent to the small towns of Coyle and Langston in Logan County, Oklahoma.



Twenty-four percent (24.2%) of those living in Guthrie are under 18. That is roughly 2,618 kids in grades K-12. Twenty-one percent (21%) of those households are below the poverty level (See Guthrie, Oklahoma Census QuickFacts – Attachment 5) and qualify for Free and Reduced Meals. This means that schools must follow Federal-serving requirements at lunch in order to be reimbursed for free and reduced meals, as well as paid meals. Federal reimbursements are handled through the state and subsidize each participating school's Child Nutrition Program and food purchases. For purposes of this study, we used Guthrie Public School District to analyze the local school market for potential business (See Guthrie Public School District Map – Attachment 6).

According to the Guthrie Public Schools 2013-2014 Operating Budget (See Budget Sheets in Attachment 7), revenue projections from local, state, and federal sources total \$21,823,000. Of this amount, \$1,383,580 is allocated to the Child Nutrition Fund with \$442,870 of that amount being spent on food and milk; this is down from the previous year (Guthrie Public School District spent \$502,427 on food and milk in 2013).

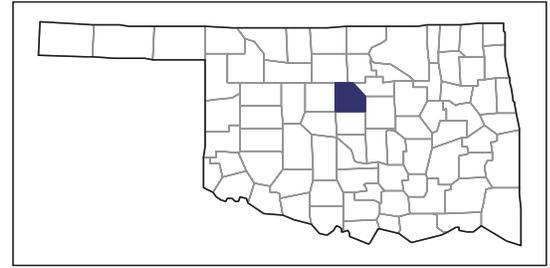
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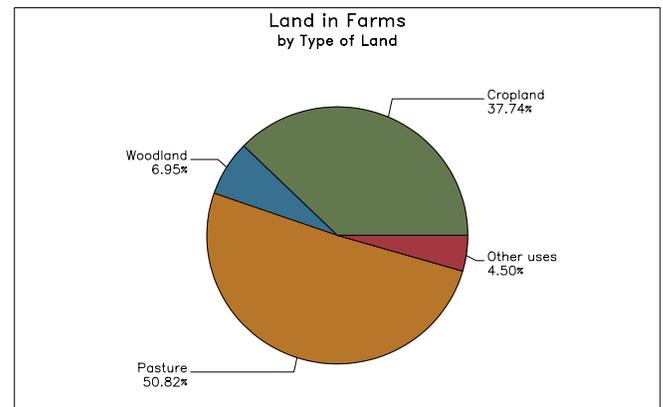
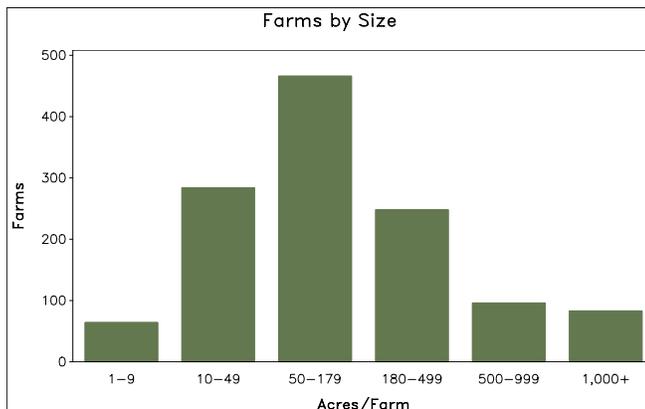
# 2007 CENSUS OF AGRICULTURE

## County Profile



## Logan County Oklahoma

	2007	2002	% change
<b>Number of Farms</b>	1,241	1,205	+ 3
<b>Land in Farms</b>	403,810 acres	365,671 acres	+ 10
<b>Average Size of Farm</b>	325 acres	303 acres	+ 7
<b>Market Value of Products Sold</b>	\$48,793,000	\$41,461,000	+ 18
Crop Sales \$8,888,000 (18 percent)			
Livestock Sales \$39,905,000 (82 percent)			
Average Per Farm	\$39,317	\$34,408	+ 14
<b>Government Payments</b>	\$1,313,000	\$1,256,000	+ 5
Average Per Farm Receiving Payments	\$3,125	\$3,196	- 2



# 2007 CENSUS OF AGRICULTURE

## County Profile

### Logan County – Oklahoma

#### Ranked items among the 77 state counties and 3,079 U.S. counties, 2007

Item	Quantity	State Rank	Universe <sup>1</sup>	U.S. Rank	Universe <sup>1</sup>
<b>MARKET VALUE OF AGRICULTURAL PRODUCTS SOLD (\$1,000)</b>					
Total value of agricultural products sold	48,793	38	77	1,583	3,076
Value of crops including nursery and greenhouse	8,888	38	77	1,930	3,072
Value of livestock, poultry, and their products	39,905	35	77	943	3,069
<b>VALUE OF SALES BY COMMODITY GROUP (\$1,000)</b>					
Grains, oilseeds, dry beans, and dry peas	(D)	(D)	76	(D)	2,933
Tobacco	-	-	-	-	437
Cotton and cottonseed	-	-	26	-	626
Vegetables, melons, potatoes, and sweet potatoes	251	19	76	1,402	2,796
Fruits, tree nuts, and berries	79	40	70	1,513	2,659
Nursery, greenhouse, floriculture, and sod	(D)	9	69	(D)	2,703
Cut Christmas trees and short rotation woody crops	(D)	22	26	(D)	1,710
Other crops and hay	2,061	40	77	853	3,054
Poultry and eggs	117	27	76	1,378	3,020
Cattle and calves	37,148	23	77	318	3,054
Milk and other dairy products from cows	594	40	76	1,550	2,493
Hogs and pigs	38	55	77	1,694	2,922
Sheep, goats, and their products	497	6	77	253	2,998
Horses, ponies, mules, burros, and donkeys	1,381	8	77	144	3,024
Aquaculture	-	-	27	-	1,498
Other animals and other animal products	129	13	70	891	2,875
<b>TOP CROP ITEMS (acres)</b>					
Forage - land used for all hay and haylage, grass silage, and greenchop	52,113	21	77	262	3,060
Wheat for grain, all	28,519	31	75	406	2,481
Sorghum for grain	1,405	23	54	413	1,158
Corn for grain	727	40	68	1,954	2,634
Rye for grain	600	12	38	103	977
<b>TOP LIVESTOCK INVENTORY ITEMS (number)</b>					
Cattle and calves	49,520	53	77	584	3,060
Pheasants	5,141	1	36	133	1,544
Horses and ponies	3,479	16	77	187	3,066
Layers	3,214	23	76	920	3,024
Goats, all	3,069	10	77	144	3,023

#### Other County Highlights

Economic Characteristics	Quantity	Operator Characteristics	Quantity
Farms by value of sales:		Principal operators by primary occupation:	
Less than \$1,000	396	Farming	455
\$1,000 to \$2,499	114	Other	786
\$2,500 to \$4,999	155	Principal operators by sex:	
\$5,000 to \$9,999	184	Male	1,074
\$10,000 to \$19,999	143	Female	167
\$20,000 to \$24,999	26	Average age of principal operator (years)	58.7
\$25,000 to \$39,999	73	All operators by race <sup>2</sup> :	
\$40,000 to \$49,999	30	American Indian or Alaska Native	47
\$50,000 to \$99,999	58	Asian	3
\$100,000 to \$249,999	39	Black or African American	61
\$250,000 to \$499,999	15	Native Hawaiian or Other Pacific Islander	-
\$500,000 or more	8	White	1,716
Total farm production expenses (\$1,000)	39,502	More than one race	19
Average per farm (\$)	31,831	All operators of Spanish, Hispanic, or Latino Origin <sup>2</sup>	20
Net cash farm income of operation (\$1,000)	13,092		
Average per farm (\$)	10,549		

See "Census of Agriculture, Volume 1, Geographic Area Series" for complete footnotes, explanations, definitions, and methodology.

(D) Cannot be disclosed. (Z) Less than half of the unit shown.

<sup>1</sup> Universe is number of counties in state or U.S. with item. <sup>2</sup> Data were collected for a maximum of three operators per farm.

# THE FARM to SCHOOL CENSUS

## National Overview

[State & District](#)

[Census Data Explorer](#)

[Farm to School Home](#)

[Media Kit](#)

[Planning Toolkit](#)

[Resources](#)

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## NATIONAL OVERVIEW

### Bringing the farm to school



**4,322**  
districts

**40,328**  
schools

**23,513,237**  
children

USDA distributed the Farm to School Census (the Census) to **13,133** public school districts in the United States, **9,887** of which completed the Census. **4,322** districts operating approximately **40,328** schools with **23,513,237** students in attendance are bringing the farm to school. ([See the details](#))

Generally the information presented below is derived from only those school districts that participated in farm to school activities in the 2011-2012 school year. Please see [About the Census](#) for more details about the calculations.

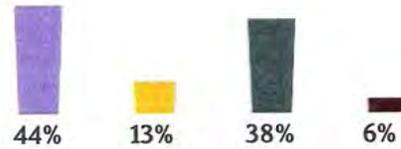
### Healthy habits take root

ARE YOU PARTICIPATING IN FARM TO SCHOOL ACTIVITIES?

- Yes
- Plan to start in the future

**44%** said yes they are engaged in farm to school activities

- No
- Don't know



Farm to school programs exist in every state in the country and the District of Columbia in school districts of all sizes - large and small, rural and urban. ([See the details](#))

## Farm to school makes the grade

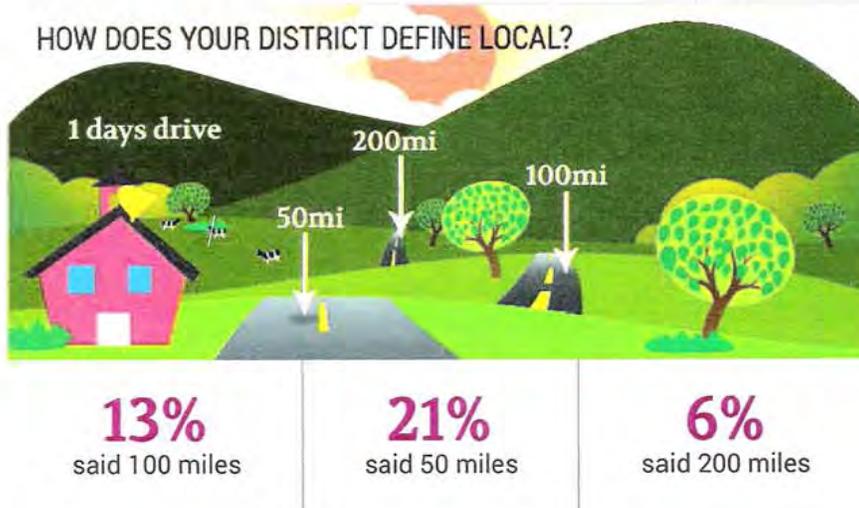
WHAT AGE GROUPS WERE TARGETED FOR FARM TO SCHOOL ACTIVITIES?



**30%** of school districts have farm to school activities in pre-K settings. ([See the details](#))

## Defining local

HOW DOES YOUR DISTRICT DEFINE LOCAL?



**13%**  
said 100 miles

**21%**  
said 50 miles

**6%**  
said 200 miles

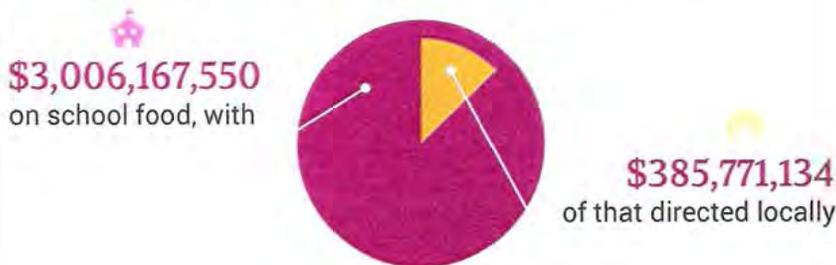
**2%** said a day's drive, **26%** said within the state, **10%** said within the region, and **5%** had another definition for local. ([See the details](#))



[Learn more about defining local and finding local foods](#)

## Schools invest in local communities with their food dollars

School districts that bought local products in the 2011-2012 school year spent an estimated



**56%** of these districts say they will buy more local foods in the future. ([See the details](#))



[Learn more about buying local foods](#)

"We let the students come out to the farm truck and pick out a watermelon; they all try to pick the largest one to take back to their class!"

Russellville City School, AL

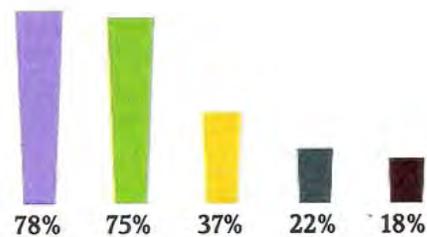


## Local foods span the school meal tray

### WHAT KINDS OF LOCAL PRODUCTS ARE YOU BUYING?

- Fruit
- Vegetables
- Fluid milk
- Baked goods
- Dairy products, other than milk

**78%** said fruit followed by vegetables at 75%



Look for growth in these product categories in the future: **plant-based proteins, herbs, meat or poultry, eggs, and grains/flour.** ([See the details](#))



[Learn more about buying local foods](#)

### Local foods at breakfast, lunch, and dinner



**48%**  
breakfast

**87%**  
lunch

**4%**  
dinner

Local foods are also served as snacks (**18%**), in the Fresh Fruit and Vegetable Program (**27%**), and during summer meal programs (**19%**). ([See the details](#))



[Learn more about planning local menus](#)

### School gardens are sprouting up across the country



**31%**  
said yes

=

**2,401**  
school gardens

In addition to buying local products and building school gardens, school districts are promoting locally produced foods at school in general (**42%**), holding taste tests/demos of locally produced foods (**38%**), and conducting student field trips to farms (**30%**). (See the details)

**NATIONAL SCHOOL LUNCH PROGRAM: CASH PAYMENTS**

**Data as of September 5, 2014**

State/Territory	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Alabama	167,133,611	180,922,849	179,949,928	183,360,311	197,659,575
Alaska	25,873,292	28,197,128	29,407,198	29,565,695	31,155,422
Arizona	204,643,278	225,962,300	230,151,125	240,389,088	255,222,358
Arkansas	106,828,059	114,543,775	119,522,292	118,712,494	125,966,158
California	1,205,152,116	1,298,685,622	1,342,087,882	1,364,165,309	1,398,993,820
Colorado	100,492,318	111,760,722	116,245,673	118,139,048	126,032,868
Connecticut	69,634,251	76,295,113	78,931,359	82,760,536	87,189,610
Delaware	21,085,101	23,584,660	25,952,078	28,307,013	30,079,081
District of Columbia	16,848,296	19,287,854	18,770,915	19,679,435	23,189,712
Florida	499,244,312	576,429,798	608,489,468	632,068,499	687,311,298
Georgia	377,882,202	408,565,866	420,719,397	436,166,516	468,235,786
Guam	5,611,950	6,305,982	6,162,644	6,846,127	7,187,540
Hawaii	31,732,116	33,014,172	38,978,699	41,334,302	42,752,946
Idaho	40,978,541	46,362,524	48,010,648	49,576,182	51,095,423
Illinois	334,867,197	368,188,927	378,902,861	386,886,966	431,058,296
Indiana	186,436,914	210,637,102	218,376,557	226,645,102	241,405,653
Iowa	75,679,860	83,226,013	87,736,547	90,817,848	96,917,469
Kansas	78,641,649	86,107,726	89,396,079	94,889,445	99,345,239
Kentucky	147,835,706	158,474,568	160,425,672	168,615,954	183,295,376
Louisiana	173,834,394	185,693,000	190,517,613	191,881,753	203,547,449
Maine	26,951,706	30,027,905	30,890,119	31,578,355	32,839,876
Maryland	108,400,402	120,800,038	130,432,107	138,903,960	147,399,829
Massachusetts	122,968,678	136,470,873	141,232,306	147,435,272	157,041,674
Michigan	230,633,541	260,845,068	264,981,475	282,234,325	292,075,955
Minnesota	111,936,817	127,878,336	133,195,171	137,829,965	147,181,323
Mississippi	138,312,868	147,681,017	150,241,214	151,130,756	162,085,512
Missouri	159,391,090	175,080,202	179,050,265	187,106,101	195,951,353
Montana	20,411,150	22,892,489	23,881,225	24,123,757	25,269,525
Nebraska	49,704,085	54,077,551	57,532,266	60,802,947	63,545,587
Nevada	60,092,981	67,057,456	77,191,087	81,713,617	86,328,661
New Hampshire	18,335,683	20,957,704	21,720,455	22,365,661	23,115,257
New Jersey	173,366,378	195,062,157	205,294,874	217,069,252	232,010,037
New Mexico	76,721,985	82,065,323	84,115,742	86,100,321	88,916,200
New York	511,642,909	559,048,185	583,296,262	598,270,367	644,399,153
North Carolina	283,319,597	307,225,962	320,568,729	334,541,817	349,399,562
North Dakota	13,729,659	15,321,034	15,895,527	16,949,335	17,550,190
Ohio	273,824,571	301,678,067	311,313,790	326,101,191	342,242,485
Oklahoma	127,152,266	137,825,982	141,518,106	145,617,913	153,074,624
Oregon	84,591,378	95,661,407	97,560,979	99,569,441	102,784,756
Pennsylvania	261,521,306	286,383,743	294,441,422	302,196,419	322,751,323
Puerto Rico	122,555,017	122,411,746	118,694,264	124,500,722	128,194,394
Rhode Island	23,215,203	25,038,563	25,931,814	27,081,022	28,978,111
South Carolina	155,809,165	171,236,265	171,433,803	175,452,067	187,200,958
South Dakota	22,172,870	24,284,966	24,969,432	25,747,053	27,414,574
Tennessee	194,907,006	210,368,166	215,925,570	228,444,178	239,244,242
Texas	1,038,955,511	1,148,951,410	1,197,859,307	1,208,097,479	1,312,918,983
Utah	71,681,672	82,036,770	87,098,861	88,285,888	93,768,358
Vermont	11,537,721	12,904,135	13,253,699	14,201,517	14,644,066
Virginia	166,625,674	183,532,581	196,107,350	206,654,657	216,171,920
Virgin Islands	5,141,178	5,258,163	5,635,592	5,851,681	5,795,276

Washington	142,516,270	162,443,912	169,251,573	175,029,553	183,357,510
West Virginia	52,044,740	55,017,415	55,963,650	59,864,470	64,470,304
Wisconsin	124,253,313	140,139,710	147,566,857	150,446,879	158,536,037
Wyoming	10,955,071	12,636,691	13,167,456	13,258,841	13,961,409
Dept. of Defense	8,724,988	9,111,314	9,111,654	9,238,005	9,237,794
DOD Marines	128,983	138,198	137,814	131,714	132,394
DOD Navy	820,437	890,248	767,585	787,183	788,126
<b>TOTAL</b>	<b>8,874,539,615</b>	<b>9,751,658,005</b>	<b>10,105,058,640</b>	<b>10,414,602,410</b>	<b>11,057,497,898</b>

Payments to State agencies are based on per meal rates which are adjusted annually to offset changes in food prices. Administrative costs are not included. Department of Defense activity represents children of armed forces personnel attending schools overseas. Cash payments include the costs of snacks served under the National School Lunch Program as well as lunches.

**Data are subject to revision.**

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State &amp; County QuickFacts

## Logan County, Oklahoma

<b>People QuickFacts</b>	<b>Logan County Oklahoma</b>	
Population, 2013 estimate	44,422	3,850,568
Population, 2010 (April 1) estimates base	41,853	3,751,357
Population, percent change, April 1, 2010 to July 1, 2013	6.1%	2.6%
Population, 2010	41,848	3,751,351
Persons under 5 years, percent, 2013	6.1%	6.9%
Persons under 18 years, percent, 2013	24.1%	24.6%
Persons 65 years and over, percent, 2013	14.6%	14.3%
Female persons, percent, 2013	50.6%	50.5%
-----		
White alone, percent, 2013 (a)	82.3%	75.4%
Black or African American alone, percent, 2013 (a)	9.2%	7.7%
American Indian and Alaska Native alone, percent, 2013 (a)	3.5%	9.0%
Asian alone, percent, 2013 (a)	0.6%	2.0%
Native Hawaiian and Other Pacific Islander alone, percent, 2013 (a)	0.1%	0.2%
Two or More Races, percent, 2013	4.3%	5.8%
Hispanic or Latino, percent, 2013 (b)	5.5%	9.6%
White alone, not Hispanic or Latino, percent, 2013	77.8%	67.5%
-----		
Living in same house 1 year & over, percent, 2008-2012	84.9%	82.1%
Foreign born persons, percent, 2008-2012	2.2%	5.5%
Language other than English spoken at home, pct age 5+, 2008-2012	4.2%	9.2%
High school graduate or higher, percent of persons age 25+, 2008-2012	88.3%	86.2%
Bachelor's degree or higher, percent of persons age 25+, 2008-2012	22.9%	23.2%
Veterans, 2008-2012	3,715	322,008
Mean travel time to work (minutes), workers age 16+, 2008-2012	26.8	21.0
-----		
Housing units, 2013	17,153	1,682,256
Homeownership rate, 2008-2012	78.2%	67.5%
Housing units in multi-unit structures, percent, 2008-2012	3.7%	15.1%
Median value of owner-occupied housing units, 2008-2012	\$131,400	\$110,800
Households, 2008-2012	14,682	1,439,292
Persons per household, 2008-2012	2.73	2.53
Per capita money income in past 12 months (2012 dollars), 2008-2012	\$25,982	\$24,046
Median household income, 2008-2012	\$52,031	\$44,891
Persons below poverty level, percent, 2008-2012	14.1%	16.6%
-----		
<b>Business QuickFacts</b>	<b>Logan County Oklahoma</b>	
Private nonfarm establishments, 2012	747	90,954 <sup>2</sup>
Private nonfarm employment, 2012	6,211	1,305,183 <sup>2</sup>
Private nonfarm employment, percent change, 2011-2012	1.4%	3.5% <sup>2</sup>
Nonemployer establishments, 2012	3,551	266,586
-----		
Total number of firms, 2007	4,438	333,797
Black-owned firms, percent, 2007	F	3.1%
American Indian- and Alaska Native-owned firms, percent, 2007	S	6.3%
Asian-owned firms, percent, 2007	S	2.0%

Native Hawaiian and Other Pacific Islander-owned firms, percent, 2007	F	0.0%
Hispanic-owned firms, percent, 2007	S	2.3%
Women-owned firms, percent, 2007	19.9%	25.3%
<hr/>		
Manufacturers shipments, 2007 (\$1000)	0 <sup>1</sup>	60,681,358
Merchant wholesaler sales, 2007 (\$1000)	D	48,074,682
Retail sales, 2007 (\$1000)	275,565	43,095,353
Retail sales per capita, 2007	\$7,382	\$11,931
Accommodation and food services sales, 2007 (\$1000)	27,916	5,106,585
Building permits, 2012	53	11,930

Geography QuickFacts	Logan	
	County	Oklahoma
Land area in square miles, 2010	743.83	68,594.92
Persons per square mile, 2010	56.3	54.7
FIPS Code	083	40
Metropolitan or Micropolitan Statistical Area	Oklahoma City, OK Metro Area	

1: Counties with 500 employees or less are excluded.  
 2: Includes data not distributed by county.

(a) Includes persons reporting only one race.  
 (b) Hispanics may be of any race, so also are included in applicable race categories.

D: Suppressed to avoid disclosure of confidential information  
 F: Fewer than 25 firms  
 FN: Footnote on this item for this area in place of data  
 NA: Not available  
 S: Suppressed; does not meet publication standards  
 X: Not applicable  
 Z: Value greater than zero but less than half unit of measure shown

Source U.S. Census Bureau: State and County QuickFacts. Data derived from Population Estimates, American Community Survey, Census of Population and Housing, State and County Housing Unit Estimates, County Business Patterns, Nonemployer Statistics, Economic Census, Survey of Business Owners, Building Permits  
 Last Revised: Tuesday, 08-Jul-2014 06:45:27 EDT

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State & County QuickFacts

## Guthrie (city), Oklahoma

<b>People QuickFacts</b>	<b>Guthrie</b>	<b>Oklahoma</b>
Population, 2013 estimate	10,908	3,850,568
Population, 2012 estimate	10,659	3,815,780
Population, 2010 (April 1) estimates base	10,191	3,751,357
Population, percent change, April 1, 2010 to July 1, 2013	7.0%	2.6%
Population, percent change, April 1, 2010 to July 1, 2012	4.6%	1.7%
Population, 2010	10,191	3,751,351
Persons under 5 years, percent, 2010	7.2%	7.0%
Persons under 18 years, percent, 2010	24.2%	24.8%
Persons 65 years and over, percent, 2010	16.1%	13.5%
Female persons, percent, 2010	53.0%	50.5%
-----		
White alone, percent, 2010 (a)	76.1%	72.2%
Black or African American alone, percent, 2010 (a)	13.4%	7.4%
American Indian and Alaska Native alone, percent, 2010 (a)	3.1%	8.6%
Asian alone, percent, 2010 (a)	0.4%	1.7%
Native Hawaiian and Other Pacific Islander alone, percent, 2010 (a)	0.1%	0.1%
Two or More Races, percent, 2010	5.3%	5.9%
Hispanic or Latino, percent, 2010 (b)	4.6%	8.9%
White alone, not Hispanic or Latino, percent, 2010	74.0%	68.7%
-----		
Living in same house 1 year & over, percent, 2008-2012	75.8%	82.1%
Foreign born persons, percent, 2008-2012	1.7%	5.5%
Language other than English spoken at home, pct age 5+, 2008-2012	3.2%	9.2%
High school graduate or higher, percent of persons age 25+, 2008-2012	86.4%	86.2%
Bachelor's degree or higher, percent of persons age 25+, 2008-2012	16.3%	23.2%
Veterans, 2008-2012	954	322,008
Mean travel time to work (minutes), workers age 16+, 2008-2012	19.8	21.0
Housing units, 2010	4,643	1,664,378
Homeownership rate, 2008-2012	59.1%	67.5%
Housing units in multi-unit structures, percent, 2008-2012	11.8%	15.1%
Median value of owner-occupied housing units, 2008-2012	\$99,100	\$110,800
Households, 2008-2012	3,822	1,439,292
Persons per household, 2008-2012	2.43	2.53
Per capita money income in past 12 months (2012 dollars), 2008-2012	\$19,115	\$24,046
Median household income, 2008-2012	\$34,590	\$44,891
Persons below poverty level, percent, 2008-2012	21.0%	16.6%
-----		
<b>Business QuickFacts</b>	<b>Guthrie</b>	<b>Oklahoma</b>
Total number of firms, 2007	1,626	333,797
Black-owned firms, percent, 2007	F	3.1%
American Indian- and Alaska Native-owned firms, percent, 2007	S	6.3%
Asian-owned firms, percent, 2007	F	2.0%
Native Hawaiian and Other Pacific Islander-owned firms, percent, 2007	F	0.0%
Hispanic-owned firms, percent, 2007	F	2.3%
Women-owned firms, percent, 2007	23.5%	25.3%

Manufacturers shipments, 2007 (\$1000)	0 <sup>1</sup>	60,681,358
Merchant wholesaler sales, 2007 (\$1000)	D	48,074,682
Retail sales, 2007 (\$1000)	219,026	43,095,353
Retail sales per capita, 2007	\$19,991	\$11,931
Accommodation and food services sales, 2007 (\$1000)	19,870	5,106,585

<b>Geography QuickFacts</b>	<b>Guthrie Oklahoma</b>	
Land area in square miles, 2010	18.77	68,594.92
Persons per square mile, 2010	542.8	54.7
FIPS Code	31700	40
Counties		

1: Counties with 500 employees or less are excluded.

(a) Includes persons reporting only one race.

(b) Hispanics may be of any race, so also are included in applicable race categories.

D: Suppressed to avoid disclosure of confidential information

F: Fewer than 25 firms

FN: Footnote on this item for this area in place of data

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Source U.S. Census Bureau: State and County QuickFacts. Data derived from Population Estimates, American Community Survey, Census of Population and Housing, County Business Patterns, Economic Census, Survey of Business Owners, Building Permits, Census of Governments

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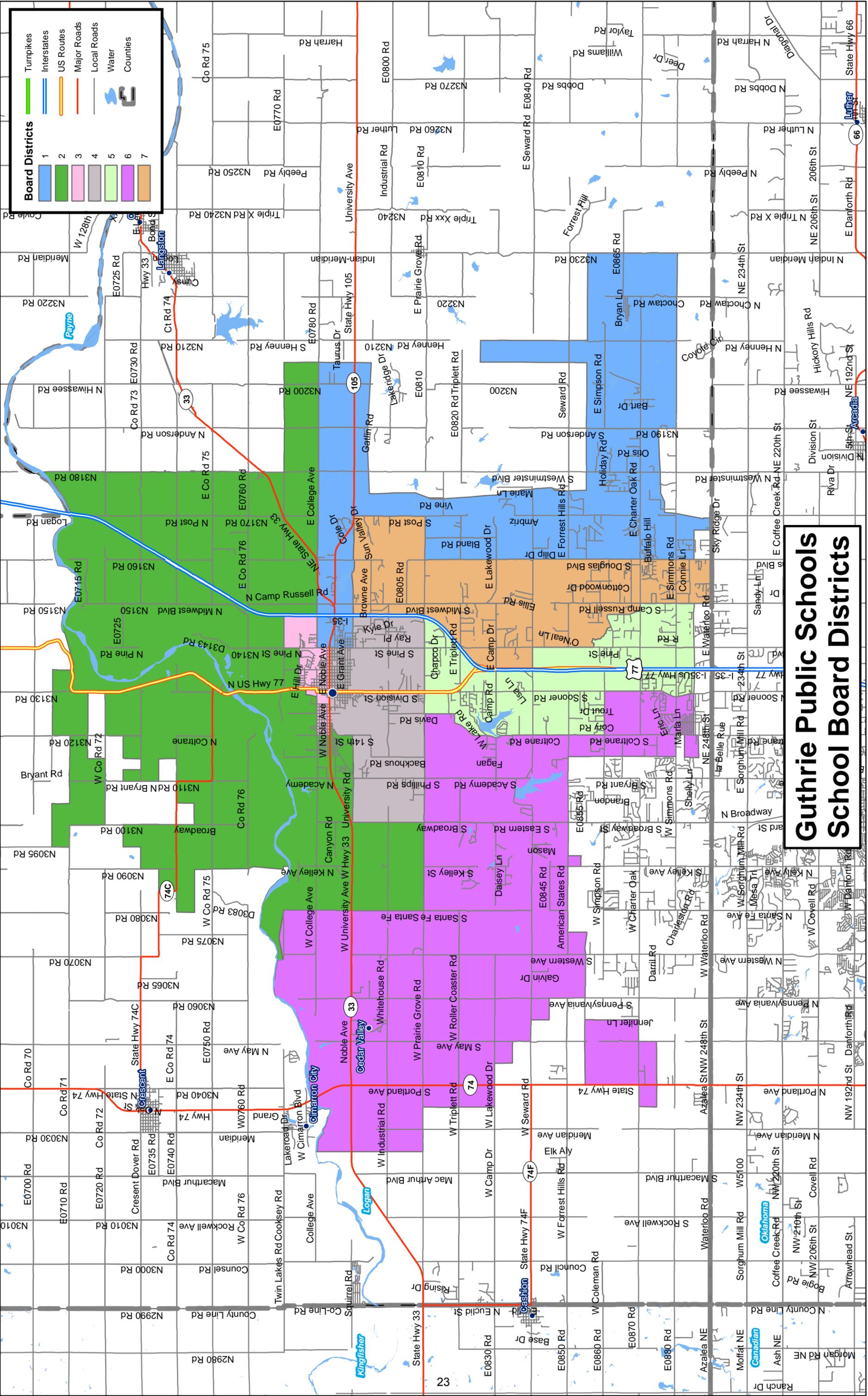
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||||



**Board Districts**

1	2	3	4	5	6	7
Blue	Green	Pink	Grey	Light Green	Purple	Orange

Turnpikes (Green line)  
 Interstates (Blue line)  
 US Routes (Orange line)  
 Major Roads (Red line)  
 Local Roads (Black line)  
 Water (Blue area)  
 Counties (Black outline)

# Guthrie Public Schools School Board Districts



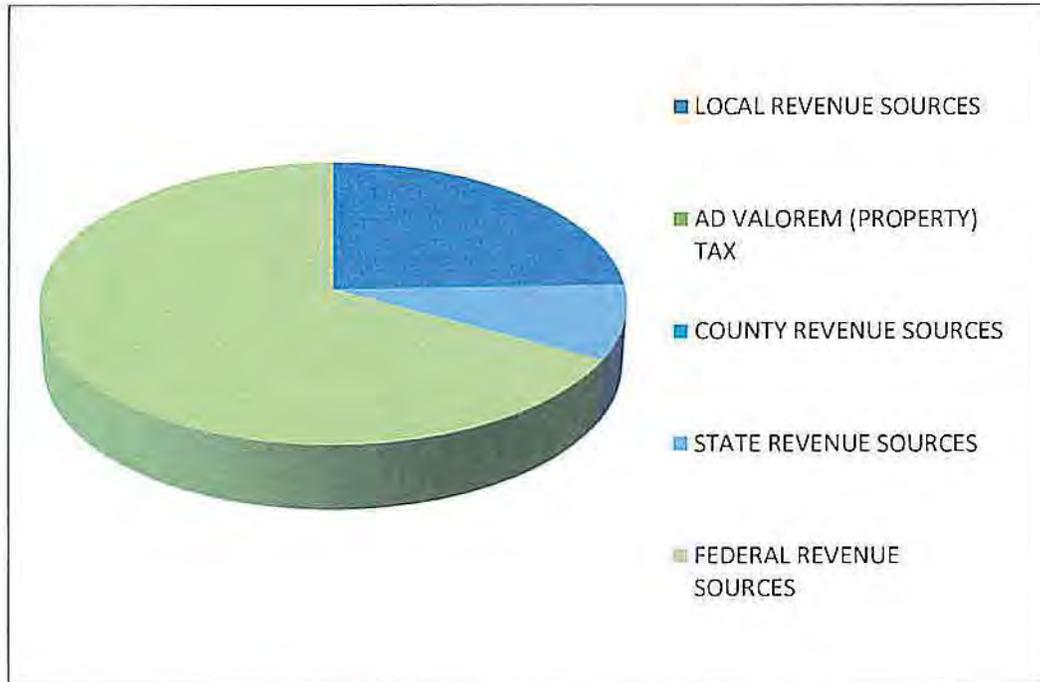
**GUTHRIE PUBLIC SCHOOLS  
OPERATING BUDGET BY FUNCTION CLASSIFICATION  
FOR THE YEAR ENDED JUNE 30, 2014**

FUNCTION	GENERAL FUND		BUILDING FUND		CHILD NUTRITION FUND		SINKING FUND		GIFTS & ENDOWMENTS FUND		INSURANCE CASUALTY FUND		SCHOOL AGE CARE FUND	
1000 - Instruction	\$12,477,065.59		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00	
2100 - Support Services, Students	1,380,608.01		0.00		0.00		0.00		0.00		0.00		0.00	
2200 - Support Services, Instructional Staff	1,287,740.18		0.00		0.00		0.00		0.00		0.00		0.00	
2300 - General Administration	683,947.49		0.00		0.00		0.00		0.00		0.00		0.00	
2400 - School Administration	1,624,134.94		0.00		0.00		0.00		0.00		0.00		0.00	
2500 - Central Services	702,045.00		140.00		0.00		0.00		0.00		0.00		0.00	
2600 - Operation & Maintenance of Plant	2,127,043.54		426,360.70		0.00		0.00		0.00		25,214.59		0.00	
2700 - Student Transportation	1,513,248.22		0.00		0.00		0.00		0.00		37,000.00		0.00	
3100 - Child Nutrition Program	170.00		0.00		1,383,330.00		0.00		0.00		0.00		0.00	
3300 - Community Service	1,500.00		0.00		0.00		0.00		0.00		0.00		107,470.00	
4000 - Facility Acquisition & Construction	4,329.97		125,980.00		0.00		0.00		0.00		0.00		0.00	
5100 - Debt Service	0.00		0.00		0.00		0.00		0.00		0.00		0.00	
5200/5300/5600 - Corrections, Clearing & Fund Transfers	0.00		0.00		0.00		0.00		0.00		0.00		0.00	
5500 - Private Non-Profit Schools	21,120.00		0.00		0.00		0.00		0.00		0.00		0.00	
7000 - Scholarships, Awards, and Claims	0.00		0.00		0.00		0.00		20,148.42		0.00		0.00	
8000 - Repayments	50.00		0.00		250.00		0.00		0.00		0.00		0.00	
	<b>\$21,823,002.94</b>		<b>\$652,480.70</b>		<b>\$1,383,580.00</b>		<b>\$0.00</b>		<b>\$20,148.42</b>		<b>\$62,214.59</b>		<b>\$107,470.00</b>	

**GUTHRIE PUBLIC SCHOOLS  
OPERATING BUDGET BY OBJECT CLASSIFICATION  
FOR THE YEAR ENDED JUNE 30, 2014**

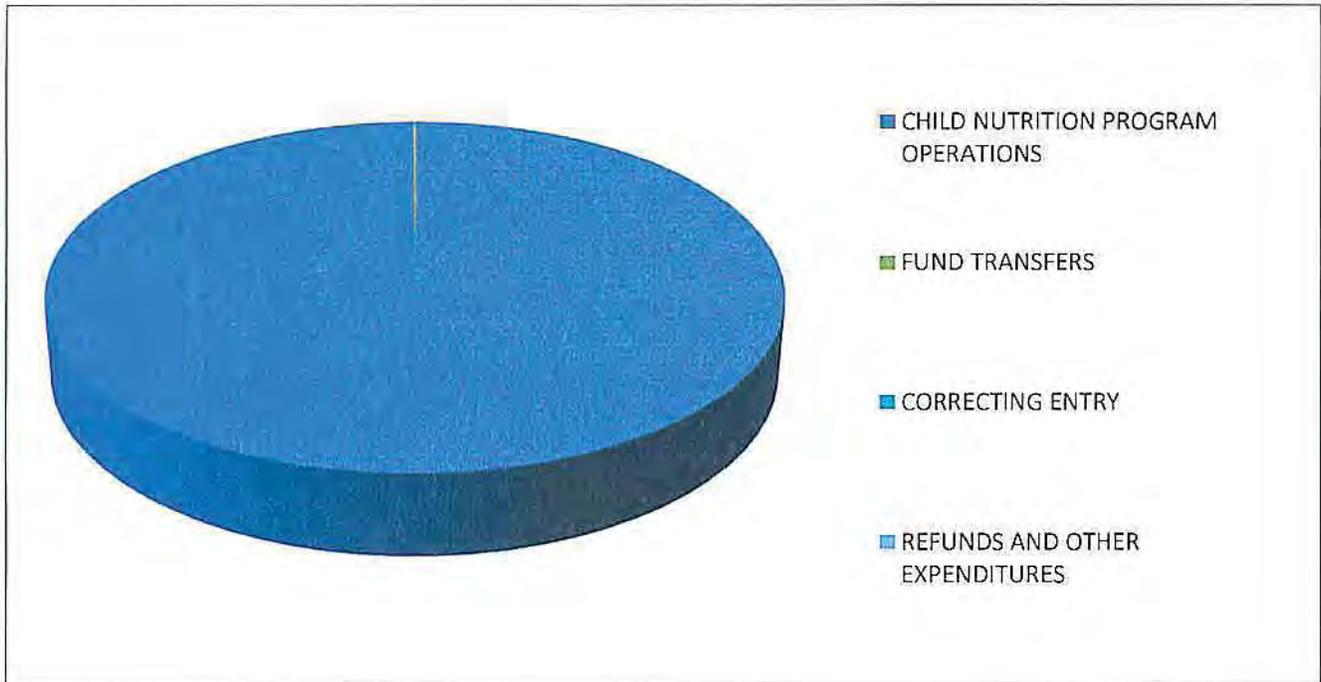
OBJECT	GENERAL		BUILDING		CHILD NUTRITION		SINKING		GIFTS & ENDOWMENTS		INSURANCE CASUALTY		SCHOOL AGE CARE	
	FUND	FUND	FUND	FUND	FUND	FUND	FUND	FUND	FUND	FUND	FUND	FUND	FUND	FUND
100 - Salaries	\$13,315,904.81		\$0.00		\$398,930.00		\$0.00		\$0.00		\$0.00			\$72,000.00
200 - Employee Benefits	4,911,189.32		0.00		172,990.00		0.00		0.00		0.00			33,660.00
300 - Professional & Technical	565,030.00		18,830.00		256,900.00		0.00		0.00		0.00			0.00
410 - Utilities	107,990.00		0.00		0.00		0.00		0.00		0.00			0.00
420,430 - Cleaning, Repair, & Maint.	64,655.50		215,270.00		10,040.00		0.00		0.00		47,214.59			0.00
440 - Rental & Leases	158,060.00		25,000.00		1,040.00		0.00		0.00		0.00			0.00
450 - Construction Services	4,329.97		116,630.00		0.00		0.00		0.00		0.00			0.00
510,530-580 - Other Purchased Services	258,975.80		5,140.00		2,500.00		0.00		0.00		0.00			0.00
520 - Insurance	224,810.00		0.00		0.00		0.00		0.00		0.00			0.00
600 - General Supplies	446,832.81		157,610.00		96,160.00		0.00		0.00		6,500.00			1,530.00
620 - Energy (Fuel, Electric, Natural Gas)	774,180.00		0.00		0.00		0.00		0.00		0.00			0.00
630 - Food & Milk	0.00		0.00		442,870.00		0.00		0.00		0.00			0.00
640 - Books & Periodicals	297,261.70		0.00		0.00		0.00		0.00		0.00			0.00
650 - Durable Supplies	328,593.03		12,920.70		0.00		0.00		0.00		0.00			0.00
710,720 - Land & Buildings	0.00		0.00		0.00		0.00		0.00		0.00			0.00
730 - Equipment	24,650.00		0.00		0.00		0.00		0.00		0.00			0.00
760 - Vehicles	43,950.00		0.00		0.00		0.00		0.00		8,500.00			0.00
800,900 - Other Miscellaneous Expenditures	296,590.00		1,080.00		2,150.00		0.00		20,148.42		0.00			280.00
	<b>\$21,823,002.94</b>		<b>\$552,480.70</b>		<b>\$1,383,580.00</b>		<b>\$0.00</b>		<b>\$20,148.42</b>		<b>\$62,214.59</b>			<b>\$107,470.00</b>

**GUTHRIE PUBLIC SCHOOLS  
CHILD NUTRITION FUND REVENUE  
FOR THE YEAR ENDED JUNE 30, 2013**



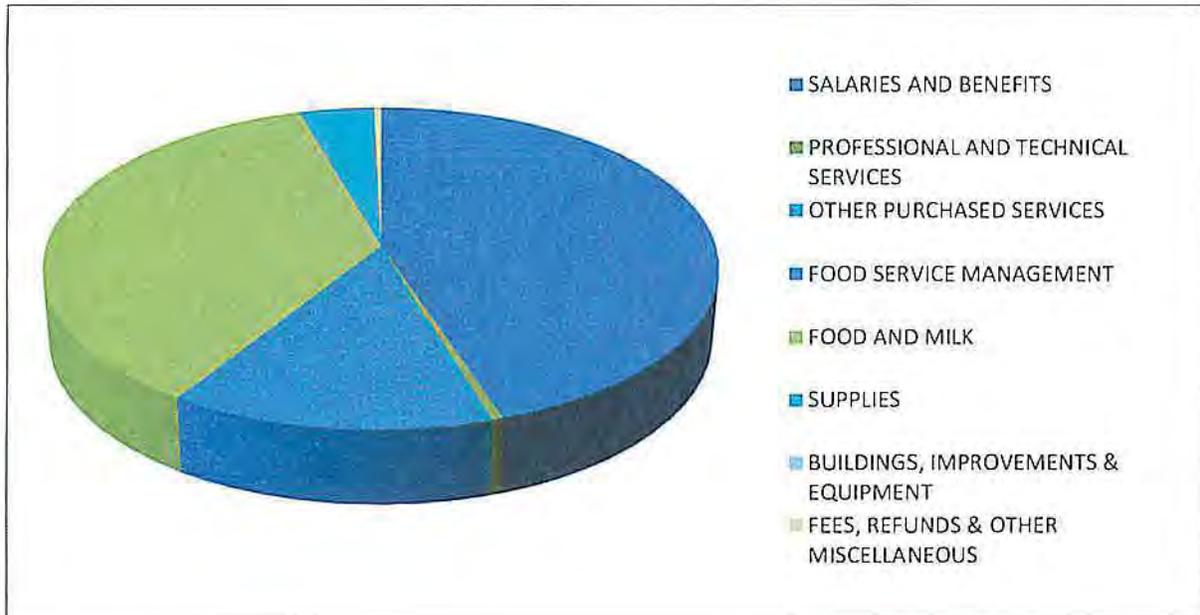
<u>SOURCE OF REVENUE</u>	<u>AMOUNT</u>	<u>PERCENT OF TOTAL REVENUE</u>
LOCAL REVENUE SOURCES	\$ 340,876.74	24.50%
AD VALOREM (PROPERTY) TAX	\$ -	0.00%
COUNTY REVENUE SOURCES	\$ -	0.00%
STATE REVENUE SOURCES	\$ 119,558.97	8.59%
FEDERAL REVENUE SOURCES	\$ <u>930,749.39</u>	<u>66.90%</u>
TOTAL CHILD NUTRITION FUND REVENUE	\$ 1,391,185.10	100.00%

**GUTHRIE PUBLIC SCHOOLS  
CHILD NUTRITION FUND EXPENDITURES BY FUNCTION  
FOR THE YEAR ENDED JUNE 30, 2013**



<u>EXPENDITURE CLASSIFICATION</u>	<u>AMOUNT</u>	<u>PERCENT OF TOTAL EXPENDITURES</u>
CHILD NUTRITION PROGRAM OPERATIONS	\$ 1,372,920.50	99.88%
FUND TRANSFERS	\$ 1,300.00	0.09%
CORRECTING ENTRY	\$ -	0.00%
REFUNDS AND OTHER EXPENDITURES	\$ <u>363.31</u>	<u>0.03%</u>
TOTAL CHILD NUTRITION FUND EXPENDITURES BY FUNCTION	\$ 1,374,583.81	100.00%

**GUTHRIE PUBLIC SCHOOLS  
CHILD NUTRITION FUND EXPENDITURES BY OBJECT  
FOR THE YEAR ENDED JUNE 30, 2013**



<u>EXPENDITURE CLASSIFICATION</u>	<u>AMOUNT</u>	<u>PERCENT OF TOTAL EXPENDITURES</u>
SALARIES AND BENEFITS	\$ 616,305.29	44.84%
PROFESSIONAL AND TECHNICAL SERVICES	\$ 6,642.00	0.48%
OTHER PURCHASED SERVICES	\$ 5,364.49	0.39%
FOOD SERVICE MANAGEMENT	\$ 182,493.69	13.28%
FOOD AND MILK	\$ 502,427.66	36.55%
SUPPLIES	\$ 56,041.50	4.08%
BUILDINGS, IMPROVEMENTS & EQUIPMENT	\$ -	0.00%
FEES, REFUNDS & OTHER MISCELLANEOUS	\$ 5,309.18	0.39%
<b>TOTAL CHILD NUTRITION FUND EXPENDITURES BY OBJECT</b>	<b>\$ 1,374,583.81</b>	<b>100.00%</b>

## 2. MARKETING AND PARTICIPATING IN THE FARM TO SCHOOL PROGRAM

### FINDING A MARKET NICHE

Copper Bear Farms had never tried to grow lettuce and leafy greens year-round before, let alone in a hydroponic greenhouse. Our mentor, Steve Upson, had proven it could be done in Oklahoma dirt using hoop houses to extend regular growing seasons. He also suggested growing practices already in place in China, Canada and Hawaii. For marketing and sales purposes, we needed to find out who was buying lettuce and other hydroponic crops and for how much wholesale and retail. We turned to the USDA's Agricultural Marketing Service (AMS) for a market report.

Most lettuce comes out of California, Arizona, and Texas. Our regional Terminal Market is in Dallas and shows that the wholesale lettuce market is steady. As an example (See Attachment 8 and 9), we ran the wholesale and retail prices for Romaine Lettuce to show the price for a carton of 24 heads. The high end for wholesale is \$26.25 and the low end is \$25.00. The wholesale price per head averaged \$1.09 to \$1.04. Retail prices, at approximately 4,000 grocery stores, averaged a head of Romaine Lettuce at \$2.29. This makes a big difference in pushing your crops through a distributor or processor versus selling and delivering direct to restaurants and schools.

Copper Bear Farms plans a sales strategy of targeting schools, campuses (college and medical), distributors, the Department of Defense, and local restaurants. Hydroponic lettuce is considered a high-value crop and could sell upwards to \$3.00 a head at retail if marketed right. The photos below show a comparison of what is offered at a local retail giant versus our product. Notice the color difference. The lettuce offered in a 6-count package sells for \$3.98 at our local Sam's club. The grower, Taylor Farms, is a corporate farm in California. Local farmers, like us, are competing with out of state growers who are mass producing products. While we cannot compete with the pricing (only .66 cents a head), we are hoping people will chose a superior product. Kids and parents, alike, have grown accustomed to eating and buying inexpensive produce unknowingly sacrificing nutritional value and flavor over cost and shopping convenience.



Taylor Farms romaine hearts grown in California is pictured on the left compared to a romaine heart growing at Copper Bear Farms in Oklahoma on the right. Notice the color of lettuce on the Taylor Farms carton and what they are selling.

## FARMING NETWORKS

Our business model runs on the dual purpose of making money and creating positive change in the way kids and their parents relate to the foods they buy and eat. We look at these purposes when making business decisions about working with others. The Kerr Center for Sustainable Agriculture is at the forefront of Oklahoma's efforts to bring about sustainable agriculture (<http://www.kerrcenter.com>). The sustainable agricultural movement is really an initiative to think broadly about what you grow and for what higher purpose, be it family, bettering local economies, or providing fresh food for school lunches to combat negative eating trends in children. These practices also include being good stewards of natural resources.

The Kerr Center has compiled a directory of agricultural producers in Oklahoma by crops and county as well as a list of institutional buyers. This vital networking guide is on the web at [www.kerrcenter.com/publications/food\\_connection06.pdf](http://www.kerrcenter.com/publications/food_connection06.pdf). Having been around since 1965, the Kerr Center has a number of publications on their website and a link to find other small farmers in your area (<http://kerrcenter.com/resources/buying-selling-locally.htm>). You can also use the Oklahoma Farm and Food Alliance's online search query

to find local farm products by type at <http://okfoodandfarm.org/buy-fresh-buy-local>. The Oklahoma Food Coop also maintains a paid membership of producers and products at [http://oklahomafood.coop/producers\\_browse.aspx](http://oklahomafood.coop/producers_browse.aspx).

To link up with other producers throughout America, refer to the USDA's Cooperative State Research, Education and Extension Service (<http://www.csrees.usda.gov>). Local extension offices maintain lists and up to date contact information on most producers at <http://countyext2.okstate.edu>. The USDA Food and Nutrition Service also published a 2005 document entitled, "Eat Smart-Farm Fresh! A guide to buying and serving locally-grown produce in school meals." And lastly, the Oklahoma Farm to School maintains a list of growers, participating schools and even distribution partners at <http://www.okfarmtoschool.com/partners.htm>.

In one USDA study, research found that 12% of the vegetables, 40% of the fruit, and 80% of the seafood eaten in the United States comes from other countries. **And on average, every piece of food on our plates has traveled 1,500 miles from where it was grown.** This is the result of importing out of state and country by large distributors and retail chains (See Ch. 14, "Keeping it Closer to Home: Food Miles and Regional Markets" by the Kerr Center).

The 2008 Farm Act defines **local or regional** as a food product marketed and sold less than 400 miles from its origin. The Food Safety Modernization Act of 2011 defines local as within 275 miles or within the same state it was grown. When you think that most food comes from 1,500 miles away, the concept of local seems miles away.

Copper Bear Farms is still defining regional and local partnerships with the main goal of selling within Oklahoma but with a geographical preference of 150 miles from our farm in Logan County, Oklahoma. A great publication to read for marketing ideas is the USDA's Rural Development publication "The Role of Food Hubs in Local Food Marketing" (Service Report 73) published in January 2013. Remember that "local" may be defined differently between school districts.

In addition to USDA commodities, schools can use their USDA foods entitlement money to purchase fresh fruits and vegetables from the Department of Defense's (DoD) Fresh Fruit and Vegetable Program. If Oklahoma Department of Human Services' Commodities Distribution Unit does not have the item

desired by the cafeteria buyer, the school can work with the DoD state vendor.

DoD indicates its vendors/contractors buy 85% of their fruits and vegetables from small businesses. Unfortunately, this has not been our experience. Not all DoD vendors will buy local when local to them may be an adjacent state. The USDA funds this program through the DoD because it has more access to food buyers under a well-oiled federal procurement division for the military.

The DoD Fresh Fruits and Vegetables program was first authorized for the school year 1994-1995. Today, the Agricultural Act ("Farm Bill") anticipates purchasing \$100 million dollars of fruit and vegetables through the DoD in 2014. Local farmer wanting to sell to the DoD, through one of its 69 vendors, should contact their main DoD vendor point of contact; for those of us in Oklahoma, that is Lisa Perry Harley ([lisa.perry@dla.mil](mailto:lisa.perry@dla.mil) or (215) 737-3745). Oklahoma's DoD vendor is Buddy's Produce.

Another vital way for small farmers to do more business with the Federal government is to register your farm on the System for Award Management database at SAM.gov. You can query who else is selling to the government. For example, Copper Bear Farms is one of two lettuce producers registered in Oklahoma ([www.SAM.gov](http://www.SAM.gov)) identified as American Indian-owned. We are one of 54 minority-owned lettuce farmers in America, according to the main list of growers, who are or available to do business with the Federal government. One of our NAICS codes, the North American Industry Classification System (NAICS), formerly SIC codes, is Other Vegetable Farming (Lettuce – 111219). You will need your NAICS code to perform a detailed marketing analysis, to see who your competitors are, and perform searches for business statistics and opportunities. At the present, the Oklahoma Department of Central Purchasing lists their statewide prime food contractor as Sysco.

Between large vendors, the USDA commodities program, large retailers like Walmart and Sams, and the DoD fruits and vegetables program, schools still have the option to buy from a local producer if the entire purchase contract is under \$150,000. School food buyers may find it more convenient to purchase through a single source, but 1) the produce may or may not be as fresh; 2) the produce may or may not be grown locally or even regionally, and 3) the dollars used to purchase from that grower may or may not stay in Oklahoma.

## FARM TO SCHOOL PROGRAM

You may have heard the term Farm to School (F2S) or F2S partnerships between local growers and schools. What does that mean exactly? For Copper Bear Farms, it means 1) growing to meet the food needs of local schools and selling them our fresh produce as our target market, 2) partnering with teachers and cafeteria managers to help teach children, through curriculum and hands-on experiences, to make better eating choices at school and at home, and 3) teaching others about family gardening, sustainable growing practices, and keeping local dollars in local economies.

The USDA Farm to School Program defines Farm to School as the “efforts that bring locally and regionally produced foods into school cafeterias; hands-on learning activities such as school gardening, farm visits, and culinary classes; and the integration of food-related education into the regular, standards-based classroom curriculum.” To receive the Farm to School newsletter, visit [www.fns.usda.gov/farmtoschool](http://www.fns.usda.gov/farmtoschool).

The Farm to School Census mentioned in Chapter 1 was just released at <http://www.fns.usda.gov/farmtoschool/census>. When asked how schools define local, 26% said within the state, 6% said within 200 miles, 13% said within a 100 miles, and 21% said less than 50 miles. When asked what schools are purchasing local, 78% said fruit and 75% said vegetables. The census was distributed to 13,144 public school districts with 9,887 districts reporting. A total of 40,328 schools and 23.5 million students are participating in the Farm to School movement. The educational lessons are targeting mostly K-5 grades, followed by grades 6-8 and lastly, grades 9-12.

The National Farm to School Network (NFSN) just released “Evaluation for Transformation: A Cross-Sectoral Evaluation Framework for Farm to School.” It has goals, objectives, and how to evaluate your F2S success. It also has a well-rounded resource/reference section. The NFSN also developed “Bearing Fruit: Farm to School Program Evaluation Resources and Recommendations.” Both of these documents can help the small grower learn how they can help schools. Schools and farmers need each other in order to meet the meal serving requirements of the Federal government’s National School Lunch Program.

## NATIONAL SCHOOL LUNCH PROGRAM

Nearly 31 million low income students receive free and reduced meals through the National School Lunch Program (NSLP) in over 101,000 public and private schools every weekday. Schools that participate in this free and reduced meals reimbursement program earn cash subsidies and USDA foods for each meal they serve. The school must follow Federal meal requirements in order to receive meal reimbursements. These daily meals are prepared the same for all students regardless of whether the meals are free, reduced or paid for.

Federal funding comes down through the state. Kitchens and meal plans are inspected by state health inspectors. The USDA pays \$2.98 per free meal served, \$2.58 for each reduced meal served, and .28 cents per meal for each paid student (See Attachment 10). Milk is reimbursed at .23 cents. Public K-12 schools are not allowed to operate their cafeterias as for-profit businesses but may have leased spaces for other food vendors.

In addition to cash reimbursements, USDA provides "entitlement foods" to schools valued at .22 cents for each meal served. Schools have access to this surplus agricultural stock. Oklahoma received over \$16.5 million dollars from USDA for Oklahoma school commodities last year (See Attachment 11). USDA commodities are ordered in the beginning of the school and calendar year through the state and trickle in each subsequent month. The problem with commodity options is that schools have a tough time meal planning around their "commodity wish list" and never know when the items they selected in August or January will arrive each month thereafter.

When you think that the NSLP cost \$10.8 billion dollars in 2010, schools are an incredible market for farmers of all sizes and in all locations (reference <http://frac.org/federal-fundnutrition-programs/national-school-lunch-program>). Ten-percent (10%) of America is eating a free and reduced school lunch meal reimbursed by the National School Lunch Program (NSLP). For more information read "The National School Lunch Program: Background, Trends, and Issues" published by the USDA Economic Research Service (Report 61, July 2008). All of these meals are carefully planned following Federal serving guidelines. It is safe to say that schools purchase and prepare school lunches with great care and in hopes that they will meet the Federal reimbursement requirements to fund their school cafeterias.

## **FOOD SERVING REQUIREMENTS**

Prior to the 2013-2014 school year, to count as a reimbursable traditional meal, a daily lunch had to include a meat or meat alternative, grain or bread, a half to three-quarters cup of fruit and/or vegetable, and milk. Today, with the NSLP changes, students grades K-8 must have at least 2 ½ cups a week of fruits and almost 4 cups (3 ¾ cups) of vegetables. Students in grades 9-12 must have 5 cups of fruits and 5 cups of vegetables for lunch each week. Additionally, a color system of weekly vegetables is now enforced to receive meal reimbursement (See the NSLP Meal Pattern, standards, and list of vegetables by color in Attachment 12). The color vegetable subgroups are dark green, red-orange, beans and peas, starchy, and other.

The USDA Farm to School Census reports that children are now eating 16% more vegetables and 23% more fruits. When a farmer can assist the cafeteria meal planner, a true F2S partnership is formed. The farmer needs to make money and build consumers; while the school meal planner must ensure kids are served healthy meals and the school is reimbursed for those meals.

## **GETTING LOCAL FARM-FRESH PRODUCE IN SCHOOLS**

In a memo dated June 27, 2006, the Executive Director of Child Nutrition at the Oklahoma State Health Department issued guidance on Fruits and Vegetables. The question was asked, "Can school districts in the State of Oklahoma buy fruits and vegetables from the producing farmer, even if the producing farmer does not possess a current license to sell food from the Oklahoma Department of Health." The answer was "yes." The farmer must follow good practices such as those found at the Oklahoma Department of Agriculture, Food and Forestry's "Tips, Tools, and Guidelines for Food Distribution and Food Safety." This guide covers specifically growing for the Farm to School Program and selling unprocessed fruits and vegetables from farms, roadside stands and farmer's markets. Also see Best Practices: Handling Fresh Fruits and Vegetables in Schools in Attachment 13.

According to Chris Kirby, the former F2S Coordinator at ODAFF, Oklahoma schools obtain their fruits and vegetables by four methods: 1) local produce is sold from the farm to the school, 2) the farm sells product to a distributor who in

turn sells it to a school, 3) the farm pays a distributor to backhaul the farmer's produce to a school (that is on the way back to the distributorship or en route to other schools), and 4) the farm sells to a packing shed near the farm and the distributor picks up the product from a packing shed. For Copper Bear Farms to process its lettuce into a ready-to-eat product (i.e. washed, cut, made into a salad mix and bagged), we would need a license to sell a processed food, specialized equipment, and additional labor. This may be a business option for us down the road because it has appeal to small schools who have limited lunch preparation staff. Part of the F2S program is learning what the school needs from local farmers and farmers looking for solutions to meet school needs.

## **BARRIERS TO SCHOOLS BUYING LOCAL**

According to the Economic Research Service of the USDA, revenues for school meals come from many sources: 1) USDA subsidies, 2) student and staff payments for NSLP meals, 3) sales of other foods, and 4) state and local funds. USDA subsidies (free and reduced meal reimbursements and commodities/food entitlements) account for half of school meal revenue. Almost half of the full costs of school meals go to labor. As mentioned earlier in this chapter, of the 31 million students served in the National School Lunch Program, approximately 15 million or half of all students qualify for free lunch. Three million are enrolled in the reduced price meal category and 12 million paid full price. (See <http://www.ers.usda.gov/AmberWaves/September08/Features/BalancingNSLP.htm>).

A significant portion of school lunch program budgets come in the way of Federal reimbursements and commodities; other revenues come from state and local government taxes, churches and donations, and parents. In smaller school districts, lunch budgets may be tight and staffing short. If a cafeteria has one full-time employee, chances are good that they don't have a lot of preparation time to prepare fresh fruits and vegetables. The Cafeteria Manager may also cook, serve and clean. Then there is the business of reimbursement reporting and meal planning for the next day, week, and month. Orders also have to be placed and commodity quantities audited.

With our time spent in the St. Mary's kitchen and pantry, it was clear that our partnering school was in need of a kitchen remodel for more food preparation space and a walk-in freezer. The school shares a pantry room with the Catholic Daughters so having a dedicated space would help with record keeping and accessibility. The kitchen also needs a dishwasher and more storage space for pots and pans and foodstuffs.

Schools need staple fruits and vegetables throughout the year. Farmers do not often grow all the vegetables needed to supply a school year-round. Distributors can obtain food items with more reliability. To turn school buying into a local affair and using distributors only on occasion would mean farmers would have to grow under cover (greenhouse or hoop house). Schools would buy more local produce if they were sold in reliable quantities year round. Because meal planning is a mathematical formula, cafeteria managers have to be accountable in calories and fat on top of all the nutrition requirements of a single meal. When an order can be placed and product reliably delivered, taste may be sacrificed on occasion to meet strict National School Lunch Program reimbursement requirements.

For whatever reason, Logan County farmers are not entering into the Farm to School program even though they have crops to sell. One way to introduce a small farm to a school is to work with the cafeteria manager and principal. Part of your marketing plan should include farm tours and taste tests at a minimum. Parents and teachers should be invited to participate. Guthrie would also benefit from a year-round fruit and vegetable market where schools could place an order with a central coordinator who could then call local farmers to have produce delivered to the HUB. The fruit market would then deliver the orders to Logan County schools. Schools will be more comfortable doing business with a business that can show business insurance, product liability insurance, and licensing if processing. Other concerns over how the farmer operates is a reliable delivery schedule, unloading, getting orders correct, hiring practices of delivery personnel, and ability to timely process orders and invoices.

## 2. ATTACHMENTS



8.	USDA, Agricultural Marketing Service Wholesale Report	39
9.	USDA, AMS Retail Report	40-41
10.	National School Lunch Program Reimbursement Rates	42-43
11.	National School Lunch Program Commodity Payouts	44-45
12.	National School Lunch Program Meal Pattern and Vegetables	46-49
13.	Best Practices	50-53

Close Window

## Report

**Location:** DALLAS

**Report Type:** Terminal Market.

**Aggregate by:** Daily

**Date(s):** 01-Sep-2014

**Download as:** Excel Text XML PDF (adobe reader required) Printable View (adobe reader required)

Hide Empty Columns:

No results found for that date range. Displaying report for most recent date.

**DALLAS : LETTUCE, BIBB** Market: GREEN LEAF LINER LOWER, OTHERS STEADY.

LETTUCE, BIBB		Package: cartons														
Date	Low-High Price	Mostly Low-High Price	Origin	Origin District	Item Size	Environment	Color	Unit of Sale	Quality	Condition	Storage	Appearance	Crop	Trans Mode	Repacked	Comment
08/29/2014	25.00 - 25.00	-	TEXAS		12s	Greenhouse										

**DALLAS : LETTUCE, BOSTON** Market: GREEN LEAF LINER LOWER, OTHERS STEADY.

LETTUCE, BOSTON		Package: cartons														
Date	Low-High Price	Mostly Low-High Price	Origin	Origin District	Item Size	Environment	Color	Unit of Sale	Quality	Condition	Storage	Appearance	Crop	Trans Mode	Repacked	Comment
08/29/2014	20.75 - 20.75	-	CALIFORNIA		24s											occas hi

**DALLAS : LETTUCE, GREEN LEAF** Market: GREEN LEAF LINER LOWER, OTHERS STEADY.

LETTUCE, GREEN LEAF		Package: cartons														
Date	Low-High Price	Mostly Low-High Price	Origin	Origin District	Item Size	Environment	Color	Unit of Sale	Quality	Condition	Storage	Appearance	Crop	Trans Mode	Repacked	Comment
08/29/2014	20.00 - 22.00	-	CALIFORNIA		24s											occas hi

**LETTUCE, GREEN LEAF** Package: cartons film lined

Date	Low-High Price	Mostly Low-High Price	Origin	Origin District	Item Size	Environment	Color	Unit of Sale	Quality	Condition	Storage	Appearance	Crop	Trans Mode	Repacked	Comment
08/29/2014	22.00 - 22.00	-	CALIFORNIA		24s											

**DALLAS : LETTUCE, LOLLA ROSSA** Market: GREEN LEAF LINER LOWER, OTHERS STEADY.

LETTUCE, LOLLA ROSSA		Package: 2 lb cartons														
Date	Low-High Price	Mostly Low-High Price	Origin	Origin District	Item Size	Environment	Color	Unit of Sale	Quality	Condition	Storage	Appearance	Crop	Trans Mode	Repacked	Comment
08/29/2014	13.00 - 13.00	-														Local

**DALLAS : LETTUCE, OAK LEAF - RED** Market: GREEN LEAF LINER LOWER, OTHERS STEADY.

LETTUCE, OAK LEAF - RED		Package: 2 lb cartons														
Date	Low-High Price	Mostly Low-High Price	Origin	Origin District	Item Size	Environment	Color	Unit of Sale	Quality	Condition	Storage	Appearance	Crop	Trans Mode	Repacked	Comment
08/29/2014	13.00 - 13.00	-														Local

**DALLAS : LETTUCE, RED LEAF** Market: GREEN LEAF LINER LOWER, OTHERS STEADY.

LETTUCE, RED LEAF		Package: cartons														
Date	Low-High Price	Mostly Low-High Price	Origin	Origin District	Item Size	Environment	Color	Unit of Sale	Quality	Condition	Storage	Appearance	Crop	Trans Mode	Repacked	Comment
08/29/2014	21.50 - 21.50	-	CALIFORNIA		24s					FINE QUAL						occas
08/29/2014	15.00 - 18.00	-	CALIFORNIA		24s											

**DALLAS : LETTUCE, ROMAINE** Market: STEADY.

LETTUCE, ROMAINE		Package: cartons														
Date	Low-High Price	Mostly Low-High Price	Origin	Origin District	Item Size	Environment	Color	Unit of Sale	Quality	Condition	Storage	Appearance	Crop	Trans Mode	Repacked	Comment
08/29/2014	25.00 - 26.25	-	CALIFORNIA		24s											occas lo

◀ 1 ▶

Display  results per Page

### Primary Criteria

**Date Range:** 09/26/2014  09/26/2014   
\* Limited Date Range: 3 yrs

**Commodity:** LETTUCE, ROMAINE  **Product Type:** All Products

**National:** Yes  **Regions:** All Regions

### Dashboard Information

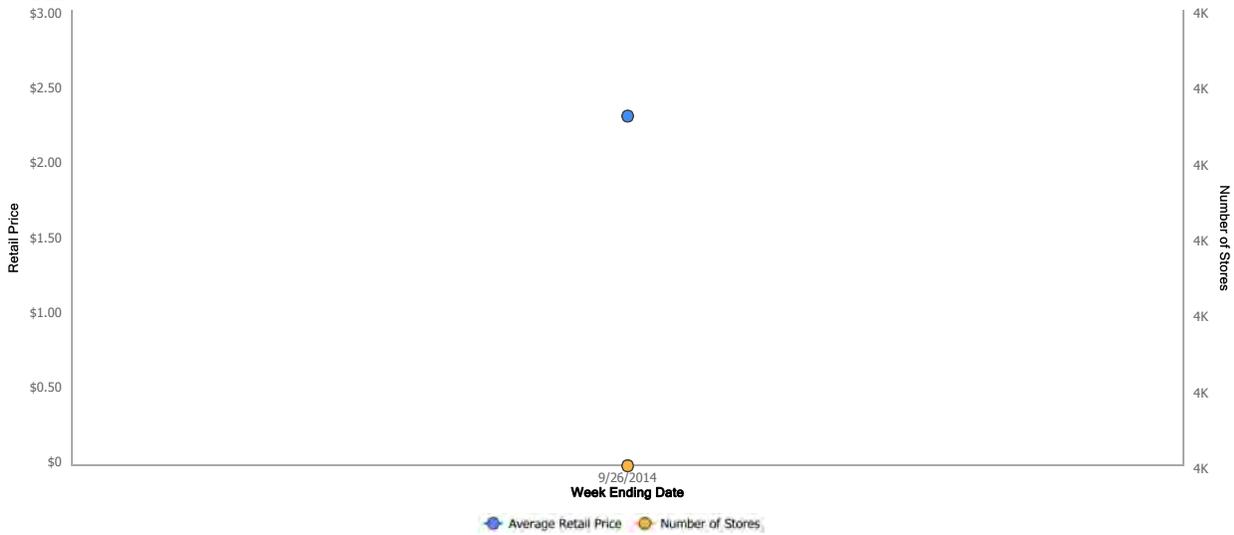
- Retail prices represent advertised prices for fruits and vegetables at major retail supermarket outlets.
- Default Overall Average Price is based on all filter options and changes dynamically based on filter selections.
- The Overall Average Price will combine all possible regions, varieties and units until specific values for those criteria are selected.
- Select a filter option for all criteria to obtain the most meaningful averages.
- To download table data, click on the "CSV" button above the table.

**\*\* See footnotes for calculation assumptions \*\***

## Overall Average Price

# \$2.29

### Average Retail Prices vs. Number of Stores



### USDA AMS Average Price Data CSV

Commodity	Week Ending Date	Region	Variety	Unit of Sale	Product Type	Average Price	Number of Stores
LETTUCE, ROMAINE	9/26/2014	NATIO...		3 count package	Non-Organic	\$2.66	34
				each	Non-Organic	\$1.13	2,592
					Organic	\$2.00	13
			per pound	Non-Organic	\$1.42	230	
			HEARTS	3 count package	Non-Organic	\$3.02	835
				Organic	\$3.52	643	

### Calculation Assumptions

1. Data for custom average calculations is current through the last completed business day.
2. The average calculation includes records with locally grown values.
3. The average calculation does not include records with null or zero price values.
4. The averages calculated in this tool are not weighted. The precision of the average depends on the detail selected via the report filter drop-down menus. Selecting more filters results in more detailed information and this returns a more precise average.
5. Information for averages is derived from weekly data on the Fruit and Vegetable Market News Portal. The National average may not equal the average of all regions due to rounding and because each area is calculated as a simple average in the CAT.

need” because they serve a high percentage of needy children.

**Revised Payments**

The following specific section 4, section 11 and section 17A National Average Payment Factors and maximum reimbursement rates for lunch, the afterschool snack rates and the breakfast rates are in effect from July 1, 2014 through June 30, 2015. Due to a higher cost of living, the average payments and maximum reimbursements for Alaska and Hawaii are higher than those for all other States. The District of Columbia, Virgin Islands, Puerto Rico and Guam use the figures specified for the contiguous States.

**National School Lunch Program Payments**

*Section 4 National Average Payment Factors*—In school food authorities which served less than 60 percent free and reduced price lunches in School Year 2012–13, the payments for meals served are: *Contiguous States*—paid rate—28 cents, free and reduced price rate—28 cents, maximum rate—36 cents; *Alaska*—paid rate—46 cents, free and reduced price rate—46 cents, maximum rate—57 cents; *Hawaii*—paid rate—33 cents, free and reduced price rate—33 cents, maximum rate—41 cents.

In school food authorities which served 60 percent or more free and

reduced price lunches in School Year 2012–13, payments are: *Contiguous States*—paid rate—30 cents, free and reduced price rate—30 cents, maximum rate—36 cents; *Alaska*—paid rate—48 cents, free and reduced price rate—48 cents, maximum rate—57 cents; *Hawaii*—paid rate—35 cents, free and reduced price rate—35 cents, maximum rate—41 cents.

School food authorities certified to receive the performance-based cash assistance will receive an additional 6 cents (adjusted annually) added to the above amounts as part of their section 4 payments.

*Section 11 National Average Payment Factors*—*Contiguous States*—free lunch—270 cents, reduced price lunch—230 cents; *Alaska*—free lunch—438 cents, reduced price lunch—398 cents; *Hawaii*—free lunch—316 cents, reduced price lunch—276 cents.

*Afterschool Snacks in Afterschool Care Programs*—The payments are: *Contiguous States*—free snack—82 cents, reduced price snack—41 cents, paid snack—07 cents; *Alaska*—free snack—133 cents, reduced price snack—66 cents, paid snack—12 cents; *Hawaii*—free snack—96 cents, reduced price snack—48 cents, paid snack—08 cents.

**School Breakfast Program Payments**

For schools “not in severe need” the payments are: *Contiguous States*—free

breakfast—162 cents, reduced price breakfast—132 cents, paid breakfast—28 cents; *Alaska*—free breakfast—259 cents, reduced price breakfast—229 cents, paid breakfast—42 cents; *Hawaii*—free breakfast—188 cents, reduced price breakfast—158 cents, paid breakfast—32 cents.

For schools in “severe need” the payments are: *Contiguous States*—free breakfast—193 cents, reduced price breakfast—163 cents, paid breakfast—28 cents; *Alaska*—free breakfast—310 cents, reduced price breakfast—280 cents, paid breakfast—42 cents; *Hawaii*—free breakfast—225 cents, reduced price breakfast—195 cents, paid breakfast—32 cents.

**Payment Chart**

The following chart illustrates the lunch National Average Payment Factors with the sections 4 and 11 already combined to indicate the per lunch amount; the maximum lunch reimbursement rates; the reimbursement rates for afterschool snacks served in afterschool care programs; the breakfast National Average Payment Factors including “severe need” schools; and the milk reimbursement rate. All amounts are expressed in dollars or fractions thereof. The payment factors and reimbursement rates used for the District of Columbia, Virgin Islands, Puerto Rico and Guam are those specified for the contiguous States.

**SCHOOL PROGRAMS MEAL, SNACK AND MILK PAYMENTS TO STATES AND SCHOOL FOOD AUTHORITIES**

[Expressed in dollars or fractions thereof effective from July 1, 2014–June 30, 2015]

National school lunch program *	Less than 60%	Less than 60% + 6 cents *	60% or more	60% or more + 6 cents *	Maximum rate	Maximum rate + 6 cents *
<b>Contiguous States:</b>						
Paid .....	0.28	0.34	0.30	0.36	0.36	0.42
Reduced Price .....	2.58	2.64	2.60	2.66	2.75	2.81
Free .....	2.98	3.04	3.00	3.06	3.15	3.21
<b>Alaska:</b>						
Paid .....	0.46	0.52	0.48	0.54	0.57	0.63
Reduced Price .....	4.44	4.50	4.46	4.52	4.69	4.75
Free .....	4.84	4.90	4.86	4.92	5.09	5.15
<b>Hawaii:</b>						
Paid .....	0.33	0.39	0.35	0.41	0.41	0.47
Reduced Price .....	3.09	3.15	3.11	3.17	3.28	3.34
Free .....	3.49	3.55	3.51	3.57	3.68	3.74
<b>School breakfast program</b>					<b>Non-severe need</b>	<b>Severe need</b>
<b>Contiguous States:</b>						
Paid .....					0.28	0.28
Reduced Price .....					1.32	1.63
Free .....					1.62	1.93
<b>Alaska:</b>						
Paid .....					0.42	0.42
Reduced Price .....					2.29	2.80
Free .....					2.59	3.10
<b>Hawaii:</b>						
Paid .....					0.32	0.32
Reduced Price .....					1.58	1.95

School breakfast program		Non-severe need	Severe need
Free .....		1.88	2.25
Special milk program		All milk	Paid milk
Pricing programs without free option .....		0.2300	N/A
Pricing programs with free option .....		N/A	0.2300
Nonpricing programs .....		0.2300	N/A

\* Performance-based cash reimbursement (adjusted annually for inflation).

Afterschool Snacks Served in Afterschool Care Programs

Contiguous States:		
Paid .....		0.07
Reduced Price .....		0.41
Free .....		0.82
Alaska:		
Paid .....		0.12
Reduced Price .....		0.66
Free .....		1.33
Hawaii:		
Paid .....		0.08
Reduced Price .....		0.48
Free .....		0.96

\* Payment listed for Free and Reduced Price Lunches include both section 4 and section 11 funds.

This action is not a rule as defined by the Regulatory Flexibility Act (5 U.S.C. 601–612) and thus is exempt from the provisions of that Act.

In accordance with the Paperwork Reduction Act of 1995 (44 U.S.C. 3507), no new recordkeeping or reporting requirements have been included that are subject to approval from the Office of Management and Budget.

This notice has been determined to be not significant and was reviewed by the Office of Management and Budget in conformance with Executive Order 12866.

National School Lunch, School Breakfast and Special Milk Programs are listed in the Catalog of Federal Domestic Assistance under No. 10.555, No. 10.553 and No. 10.556, respectively, and are subject to the provisions of Executive Order 12372, which requires intergovernmental consultation with State and local officials. (See 7 CFR part 3015, Subpart V, and the final rule related notice published at 48 FR 29114, June 24, 1983).

**Authority:** Sections 4, 8, 11 and 17A of the Richard B. Russell National School Lunch Act, as amended, (42 U.S.C. 1753, 1757, 1759a, 1766a) and sections 3 and 4(b) of the Child Nutrition Act, as amended, (42 U.S.C. 1772 and 42 U.S.C. 1773(b)).

Dated: July 11, 2014.

**Audrey Rowe,**

*Administrator, Food and Nutrition Service.*

[FR Doc. 2014–16719 Filed 7–15–14; 8:45 am]

**BILLING CODE 3410–30–P**

**DEPARTMENT OF AGRICULTURE**

**Forest Service**

**National Urban and Community Forestry Advisory Council**

**AGENCY:** Forest Service, USDA.

**ACTION:** Notice of intent to re-establish an advisory committee.

**SUMMARY:** The Secretary of Agriculture intends to re-establish the National Urban and Community Forestry Advisory Council (Council). In accordance with provisions of the Federal Advisory Committee Act (FACA), the Council is being re-established to continue: (1) Developing a National Urban and Community Forestry action plan in accordance with Section 9(g)(3)(A–F) of the Act; (2) evaluating the implementation of the plan; (3) developing criteria; and (4) submitting recommendations for the Forest Service’s National Urban and Community Forestry Cost-share Grant Program as required by Section 9(f)(1–2) of the Act. The Council is necessary and in the public interest.

**FOR FURTHER INFORMATION CONTACT:** Nancy Stremple, U.S. Department of Agriculture, Forest Service, State and Private Forestry, Cooperative Forestry, address: Yates Building, 3NW, Mail Stop 1151, 201 14th Street SW., Washington, DC 20250 or telephone: 202–205–7829. Individuals who use telecommunication devices for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 1–800–877–8339

between 8:00 a.m. and 8:00 p.m., Eastern Standard Time, Monday through Friday.

**SUPPLEMENTARY INFORMATION:**

**Background**

In accordance with the provisions of the Federal Advisory Committee Act (FACA), as amended (5 U.S.C. App 2), Section 9 of the Cooperative Forestry Assistance Act, as amended by Title XII, Section 1219 of Public Law 101–624 (Act) (16 U.S.C. 2105g), and with the concurrences of the General Services Administration (GSA), the Secretary of Agriculture intends to re-establish the Council. The Council is a statutory advisory committee. The Council operates under the provisions of FACA and will report to the Secretary of Agriculture through the Chief of the Forest Service.

The purpose of the Council is to provide advice on urban and community forestry and related natural resources and make recommendations on how USDA can tailor its programs to better serve the needs of the urban and community forestry community of practice. The Council will perform the following tasks listed above in the “Summary Section”.

**Advisory Committee Organization**

The Council will be comprised of 15 members who provide a balanced and broad representation within each of the following interests:

**NATIONAL SCHOOL LUNCH PROGRAM: COMMODITY COSTS**

**Data as of September 5, 2014**

State/Territory	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Alabama	19,909,899	20,568,947	21,133,063	20,430,478	19,674,602
Alaska	1,355,310	1,932,537	1,957,917	2,191,662	1,674,545
Arizona	26,455,148	25,838,086	25,646,978	25,651,266	24,223,857
Arkansas	13,131,398	11,287,337	14,321,231	10,604,021	13,406,884
California	115,624,945	137,363,390	131,127,499	130,981,916	130,433,954
Colorado	13,751,869	13,654,864	13,584,759	12,276,195	9,566,481
Connecticut	10,901,137	10,663,722	10,311,630	9,106,887	9,876,162
Delaware	2,944,949	3,707,966	3,567,432	3,781,941	4,071,127
District of Columbia	864,564	1,432,941	1,380,609	1,354,917	1,943,065
Florida	60,678,711	63,225,393	63,349,146	56,231,862	65,480,213
Georgia	45,573,087	49,645,447	51,624,951	43,516,855	49,580,741
Guam	30,050	0	0	0	0
Hawaii	2,998,545	2,894,489	1,982,765	2,608,522	2,692,625
Idaho	5,915,439	5,229,315	5,525,145	5,295,355	6,281,163
Illinois	33,509,082	35,769,418	43,485,441	50,298,665	40,830,847
Indiana	26,865,623	27,471,543	31,230,386	35,180,478	34,147,157
Iowa	14,762,874	15,405,874	15,303,209	12,620,333	12,755,340
Kansas	11,619,317	11,162,982	11,620,346	12,733,007	12,430,333
Kentucky	19,714,199	20,247,771	21,415,803	20,609,835	17,895,430
Louisiana	21,123,374	16,865,137	19,136,002	22,214,660	20,519,218
Maine	3,945,242	4,197,848	3,973,128	4,290,039	4,072,564
Maryland	17,542,450	16,601,685	17,467,309	17,234,802	18,150,503
Massachusetts	22,391,422	20,712,974	21,646,944	22,083,276	22,500,960
Michigan	30,646,359	31,063,377	32,138,725	31,695,033	30,408,952
Minnesota	20,769,575	18,588,564	24,228,736	21,855,664	24,801,238
Mississippi	15,055,765	13,144,758	15,653,171	12,916,775	15,301,439
Missouri	21,626,829	21,006,785	24,694,333	24,589,818	24,662,081
Montana	2,494,621	2,986,083	3,824,734	3,162,057	2,884,472
Nebraska	9,859,130	9,711,445	8,229,814	8,709,416	7,666,584
Nevada	6,557,513	6,886,490	7,010,381	8,494,124	9,887,853
New Hampshire	3,963,527	3,916,240	3,549,546	3,955,530	4,208,441
New Jersey	22,886,678	27,949,450	25,646,980	31,270,575	27,748,904
New Mexico	8,393,763	7,745,884	9,780,330	7,485,322	7,940,972
New York	65,066,222	70,270,410	64,517,716	67,043,747	69,950,534
North Carolina	38,276,982	38,376,321	41,163,515	35,156,017	35,189,531
North Dakota	2,784,859	2,735,395	3,421,220	3,213,651	3,718,488
Ohio	42,200,526	39,791,190	38,911,392	43,420,235	37,112,909
Oklahoma	14,406,780	14,385,213	16,645,007	15,923,090	16,505,439
Oregon	9,408,384	11,797,478	12,492,542	11,881,338	10,977,790
Pennsylvania	46,389,930	42,069,599	44,845,788	43,865,499	38,972,859
Puerto Rico	18,971,117	7,627,023	17,985,217	8,766,557	11,839,623
Rhode Island	2,940,570	2,660,690	2,820,854	2,933,336	3,178,749
South Carolina	19,307,338	17,499,488	20,727,213	18,466,297	16,812,312
South Dakota	3,304,524	3,295,156	3,546,347	3,611,901	2,412,338
Tennessee	27,953,390	22,889,811	24,767,855	19,355,083	21,978,795
Texas	113,284,444	111,274,444	122,407,751	128,978,087	114,926,509
Utah	13,073,908	10,669,807	14,787,620	12,061,056	13,693,117
Vermont	1,742,180	2,039,548	2,220,511	1,884,419	2,606,410
Virginia	23,268,663	23,101,773	25,355,519	20,812,814	25,077,949
Virgin Islands	518,050	491,575	315,677	652,183	810,669

Washington	15,799,692	19,535,002	20,247,760	19,801,331	18,992,340
West Virginia	6,267,606	7,151,376	7,485,941	7,151,245	7,790,514
Wisconsin	17,557,380	19,237,770	22,190,575	21,289,080	28,978,208
Wyoming	1,851,441	1,559,625	1,932,840	1,626,835	2,121,548
Dept. of Defense	837,757	560,873	852,190	876,463	1,734,072
<b>TOTAL</b>	<b>1,119,074,137</b>	<b>1,127,898,309</b>	<b>1,195,189,488</b>	<b>1,164,201,549</b>	<b>1,163,099,415</b>

Includes entitlement commodities, bonus commodities, and cash-in-lieu of commodities. Entitlement commodities are based on a rate per meal which is adjusted annually to offset changes in food costs; bonus commodities are surplus Dept. of Agriculture foods. Commodity costs represent value of foods delivered to State warehouses during the fiscal year. Dept. of Defense schools serve children of armed forces personnel stationed abroad.

**Data are subject to revision.**

Comparison of Current and New Regulatory Requirements under Final Rule “Nutrition Standards in the National School Lunch and School Breakfast Programs” Jan. 2012

<b>National School Lunch Program Meal Pattern</b>		
<b>Food Group</b>	<b>Current Requirements K-12</b>	<b>New Requirements K-12</b>
Fruit and Vegetables	½ - ¾ cup of fruit and vegetables combined per day	¾ - 1 cup of vegetables <u>plus</u> ½ - 1 cup of fruit per day Note: Students are allowed to select ½ cup fruit or vegetable under OVS.
Vegetables	No specifications as to type of vegetable subgroup	Weekly requirement for: <ul style="list-style-type: none"> <li>• dark green</li> <li>• red/orange</li> <li>• beans/peas (legumes)</li> <li>• starchy</li> <li>• other (as defined in 2010 Dietary Guidelines)</li> </ul>
Meat/Meat Alternate (M/MA)	1.5 – 2 oz eq. (daily minimum)	Daily minimum and weekly ranges: Grades K-5: 1 oz eq. min. daily (8-10 oz weekly) Grades 6-8 : 1 oz eq. min. daily (9-10 oz weekly) Grades 9-12 : 2 oz eq. min. daily (10-12 oz weekly)
Grains	8 servings per week (minimum of 1 serving per day)	Daily minimum and weekly ranges: Grades K-5: 1 oz eq. min. daily (8-9 oz weekly) Grades 6-8 : 1 oz eq. min. daily (8-10 oz weekly) Grades 9-12 : 2 oz eq. min. daily (10-12 oz weekly)
Whole Grains	Encouraged	At least half of the grains must be whole grain-rich beginning July 1, 2012. Beginning July 1, 2014, all grains must be whole grain rich.
Milk	1 cup Variety of fat contents allowed; flavor not restricted	1 cup Must be fat-free(unflavored/flavored) or 1% low fat (unflavored)

Comparison of Current and New Regulatory Requirements under Final Rule “Nutrition Standards in the National School Lunch and School Breakfast Programs” Jan. 2012

<b>School Breakfast Program Meal Pattern</b>		
<b>Food Group</b>	<b>Current Requirements K-12</b>	<b>New Requirements K-12</b>
Fruit	½ cup per day (vegetable substitution allowed)	1 cup per day (vegetable substitution allowed) Note: Quantity required SY 2014-15. Students are allowed to select ½ cup of fruit under OVS.
Grains and Meat/Meat Alternate (M/MA)	2 grains, or 2 meat/meat alternates, or 1 of each per day	Daily min. and weekly ranges for grains:  Grades K-5: 1 oz eq. min. daily (7-10 oz weekly)  Grades 6-8 : 1 oz eq. min. daily (8-10 oz weekly)  Grades 9-12 : 1 oz eq. min. daily (9-10 oz weekly)  Note: Quantity required SY 2013-14. Schools may substitute M/MA for grains after the minimum daily grains requirement is met.
Whole Grains	Encouraged	At least half of the grains must be whole grain-rich beginning July 1, 2013. Beginning July 1, 2014, all grains must be whole grain rich.
Milk	1 cup  Variety of fat contents allowed; flavor not restricted	1 cup  Must be fat-free (unflavored/flavored) or 1% low fat (unflavored)

Comparison of Current and New Regulatory Requirements under Final Rule “Nutrition Standards in the National School Lunch and School Breakfast Programs” Jan. 2012

Nutrient Standards	New Standards K-12		
<p><b>Sodium</b> Reduce, no set targets</p>	<p><b>Target I: SY 2014-15</b> Lunch ≤1230mg (K-5); ≤1360mg (6-8); ≤1420mg (9-12) Breakfast ≤540mg (K-5); ≤600mg (6-8); ≤640mg (9-12)</p>	<p><b>Target 2: SY 2017-18</b> Lunch ≤935mg (K-5) ≤1035mg (6-8); ≤1080mg (9-12) Breakfast ≤485mg (K-5); ≤535mg (6-8); ≤570mg (9-12)</p>	<p><b>Final target: 2022-23</b> Lunch ≤640mg (K-5); ≤710mg (6-8); ≤740mg (9-12) Breakfast ≤430mg (K-5); ≤470mg (6-8); ≤500mg (9-12)</p>
<p><b>Calories (min. only)</b> <i>Traditional Menu Planning</i> Lunch: 633 (grades K-3) 785 (grades 4-12) 825 (optional grades 7-12) Breakfast: 554 (grades K-12)  <i>Enhanced Menu Planning</i> Lunch: 664 (grades K-6) 825 (grades 7-12) 633 (optional grades K-3) Breakfast: 554 (grades K-12) 774 (optional grades 7-12)  <i>Nutrient Based Menu Planning</i> Lunch: 664 (grades K-6) 825 (grades 7-12) 633 (optional grades K-3) Breakfast: 554 (grades K-12) 618 (optional grades 7-12)</p>	<p><b>Calorie Ranges (min. &amp; max.)</b> <i>Only food-based menu planning allowed</i> Lunch: 550-650 (grades K-5) 600-700 (grades 6-8) 750-850 (grades 9-12) Breakfast: 350-500 (grades K-5) 400-550 (grades 6-8) 450-600 (grades 9-12)</p>		
<p><b>Saturated Fat</b> &lt;10% of total calories</p>	<p><b>Saturated Fat</b> &lt;10% of total calories</p>		
<p><b>Trans Fat:</b> no limit</p>	<p><b>New specification:</b> zero grams per serving (nutrition label)</p>		

## What Foods Are in the Vegetable Group?

Any vegetable or 100% vegetable juice counts as a member of the Vegetable Group. Vegetables may be raw or cooked; fresh, frozen, canned, or dried/dehydrated; and may be whole, cut-up, or mashed.



Vegetables are organized into 5 subgroups, based on their nutrient content.

**Key Consumer Message** *Make half your plate fruits and vegetables.*

### Commonly eaten vegetables in each subgroup

#### Dark Green Vegetables

- bok choy
- broccoli
- collard greens
- dark green leafy lettuce
- kale
- mesclun
- mustard greens
- romaine lettuce
- spinach
- turnip greens
- watercress

#### Starchy vegetables

- cassava
- corn
- fresh cowpeas, field peas, or black-eyed peas (not dry)
- green bananas
- green peas
- green lima beans
- plantains
- potatoes
- taro
- water chestnuts

#### Red & orange vegetables

- acorn squash
- butternut squash
- carrots
- hubbard squash
- pumpkin
- red peppers
- sweet potatoes
- tomatoes
- tomato juice

#### Beans and peas\*

- black beans
- black-eyed peas (mature, dry)
- garbanzo beans (chickpeas)
- kidney beans
- lentils
- navy beans
- pinto beans
- soy beans
- split peas
- white beans

#### Other vegetables

- artichokes
- asparagus
- avocado
- bean sprouts
- beets
- Brussels sprouts
- cabbage
- cauliflower
- celery
- cucumbers
- eggplant
- green beans
- green peppers
- iceberg (head) lettuce
- mushrooms
- okra
- onions
- turnips
- wax beans
- zucchini



# BEST PRACTICES

## HANDLING FRESH PRODUCE IN SCHOOLS

Fruits and vegetables are an important part of a healthy diet. Introducing children to them in schools will improve their present and future health. Fresh produce must be handled safely to reduce the risks of foodborne illness. There are a number of steps that foodservice employees can take to minimize the chances for fruits and vegetables they handle to become contaminated. Best practices for handling all types of produce are described in this fact sheet, along with practices specific to leafy greens, tomatoes, melons, and sprouts.

Contamination of produce with harmful microorganisms can occur at all stages of production, processing, transportation, storage, preparation, and service. To prevent foodborne illness, fresh produce needs to be handled with care at each step from farm to table.

# Recommendations For Handling Fresh Produce

## PURCHASING AND RECEIVING

- Use purchasing specifications that include food safety requirements, such as maintaining produce at the proper temperature, maintaining clean and pest-free storage areas and delivery vehicles, and complying with federal and state food safety laws and regulations.
- Ensure suppliers are getting produce from licensed, reputable sources.
- Check storage and handling practices of vendors.
- Establish procedures for inspecting and accepting or rejecting incoming deliveries. Procedures should include checking the condition of the fresh produce and the transportation vehicles to make sure specifications are met.

## WASHING AND PREPARATION

- Inspect produce for obvious signs of soil or damage prior to cutting, slicing, or dicing. When in doubt about damaged produce, either cut away the affected areas or do not use the item.
- Wash produce before serving or cutting using either:
  - Continuous running water.
  - Chemical disinfectants, used according to the manufacturer's label instructions for recommended concentration and contact time. *Note: Do not soak produce or store in standing water.*
- Do not rewash packaged produce labeled "ready-to-eat," "washed," or "triple washed."
- Wash thoroughly with hot soapy water all equipment, utensils, and food contact surfaces that come into contact with cut produce. Rinse, sanitize, and air-dry before use.

## HAND HYGIENE

- Wash hands thoroughly with soap and water before handling or cutting fresh produce. Rewash hands after breaks, visiting restrooms, sneezing, coughing, handling trash or money, or anytime hands become soiled or otherwise contaminated.
- Use a barrier such as gloves, deli paper, or an appropriate utensil to touch ready-to-eat produce. *Note: This does not eliminate the need for frequent proper handwashing.*
- Always wash hands before putting on disposable gloves.
- Change disposable gloves anytime the gloves may have been contaminated or when changing tasks.
- Do not wash or reuse disposable gloves.
- Change disposable gloves if they are torn or damaged.





## SERVING

- Do not store produce in direct contact with ice or water while on display on serving lines and salad bars.
- Mark the time when cut produce is displayed without refrigeration. Display cut produce for a maximum of 4 hours if not in a refrigeration unit or containers surrounded by ice. Discard any uneaten produce at the end of 4 hours.
- Create safe salad bars and self-service lines by taking the following actions:
  - Protect food with sneeze guards or food shields in a direct line between the food and the mouth or nose, usually 14 to 18 inches above the food.
  - Use cleaned and sanitized long-handled tongs, spoons, and ladles so bare hands do not touch food and the utensils do not drop into the serving pans.
  - Change utensils periodically.
  - Set up the salad bar or self-service line as close to mealtime as possible to reduce the time that produce sits out.
  - Keep cold foods at or below 41°F in a refrigeration unit or surrounded by ice.
  - Monitor and document the internal temperature of self-service items every 30 minutes as with other foods on the service lines.
  - Clean up spills promptly. Wiping cloths should be stored in sanitizing solution and laundered daily.
  - Teach children salad bar etiquette. Assign an adult to monitor the salad bar and self-service line to make sure the customers—especially children—are not touching food with their hands, tasting food while in line, putting their heads under the sneeze guard, or returning food items.
  - Clearly label all salad dressings and other containers to discourage tasting.
  - Never add freshly prepared food to food already on salad bars and self-service lines.

## STORAGE

- Maintain produce at the temperature recommended for the variety and particular stage of ripeness.
- Store produce at least 6 inches off the floor, including in walk-in refrigerators.
- Store produce in a covered container and above other items that might cause contamination.
- Follow manufacturer's instructions for the product such as "keep refrigerated" or "best if used by."
- Establish a policy for produce that is cut in-house to specify how long the refrigerated cut product may be used. Mark the product with "prepared on" or "use by" date.
- Wash produce just before preparation, not before storage.

## TRAINING AND GENERAL FOOD SAFETY PRACTICES

- Develop training programs to teach the importance of food safety and proper handling of produce to all food handlers.
- Practice good food safety and food handling techniques to prevent cross-contamination.

# Recommendations For Specific Types Of Produce



## MELONS

- Avoid using whole melons that have visible signs of decay or damaged rinds (such as mechanical damage or cracking) due to the increased risk that harmful bacteria may have contaminated the melons.
- Wash the outer surface of the melon thoroughly under running cool tap water to remove surface dirt. Scrub melons with a clean produce brush before cutting. Cut away any bruised or damaged areas before serving.
- Discard cut melons after 4 hours if maintained at 41°F or above. If possible, display cut melons in a refrigerated case, not just on top of ice.
- Display cut melons for a maximum of 4 hours without being kept cool with refrigeration or ice and discard uneaten melons at the end of 4 hours.
- Mark the date on refrigerated cut melons to indicate that they must be consumed or discarded within 7 days.



## TOMATOES

- Do not wash tomatoes in cold water. Use wash water temperatures that are at least 10°F warmer than the internal tomato temperature to prevent exterior bacteria from entering the interior of the tomato during washing.
- Ensure whole tomatoes are free from obvious signs of soil and skin damage, such as punctures, prior to cutting, slicing, or dicing. Either cut away any bruised or damaged areas, or do not use the tomato.
- Hold tomatoes at 41°F or below after cutting, including during display on serving lines and salad bars.
- Ensure the temperature of tomatoes purchased as fresh-cut (i.e., sliced, diced, or chopped) is 41°F or lower upon delivery and the tomatoes were kept cool continuously during transport. Reject fresh-cut tomatoes delivered at a temperature higher than 41°F.
- Mark the date on refrigerated cut tomatoes to indicate that they must be consumed or discarded within 7 days.
- Do not store cut tomatoes in direct contact with ice or water.



## LEAFY GREENS

- Do not use leafy greens with visible signs of decay or damage because there is an increased risk of the presence of harmful bacteria. When in doubt about the use of decayed or damaged product, either remove the unusable portions or do not use the leafy greens.
- Do not rewash packaged produce labeled "ready-to-eat," "washed," or "triple washed."

## SPROUTS

Due to the increasing number of illnesses associated with eating raw sprouts, the Food and Drug Administration has advised all consumers—especially children, pregnant women, the elderly, and persons with weakened immune systems—to not eat raw sprouts as a way to reduce the risk of foodborne illness. All sprouts should be cooked thoroughly before eating to reduce the risk of illness.

## Resources

Council for Agricultural Science and Technology. **Food Safety and Fresh Produce: An Update.**

Available at <http://www.cast-science.org/publications.asp>

Food and Drug Administration. **Draft Guidance for Tomatoes, Leafy Greens, and Melons.**

Available at <http://www.fda.gov/Food/FoodSafety/Product-SpecificInformation/FruitsVegetablesJuices/FDAProduceSafetyActivities/ucm174086.htm>

Food and Drug Administration. **Safe Handling of Raw Produce and Fresh-Squeezed Fruit and Vegetable Juices.**

Available at <http://www.cfsan.fda.gov/~dms/prodsafe.html>

National Restaurant Association. **Guidelines on How to Keep Salad Bars Safe.**

Available at [http://www.restaurant.org/foodsafety/how\\_to\\_salad.cfm](http://www.restaurant.org/foodsafety/how_to_salad.cfm)

U.S. Department of Agriculture. **Fresh Fruit and Vegetable Program Handbook.**

Available at <http://www.fns.usda.gov/cnd/FFVP/Resources/FFVPhandbookFINAL.pdf>

U.S. Department of Agriculture. **Fruits & Vegetables Galore: Helping Kids Eat More.**

Available at [http://www.fns.usda.gov/TN/Resources/fv\\_galore.html](http://www.fns.usda.gov/TN/Resources/fv_galore.html)

This project has been funded at least in part with funds from the USDA Food and Nutrition Service. The content of this publication does not necessarily reflect the views or policies of the Department, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government.

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NATIONAL FOOD SERVICE MANAGEMENT INSTITUTE,

The University of Mississippi; Telephone: 800.321.3054; Item number ET100-10



### 3. FORMING PARTNERSHIPS WITH SCHOOLS

#### SCHOOL NEEDS AND WORKING WITH LOCAL FARMERS

Schools need food for their lunches and farmers need a market in which to sell their crops. The Farm to School (F2S) Program perfectly marries these needs and creates partnerships that go beyond the primary needs of schools and farmers to directly impact the way students relate to foods. Forging these partnerships, however, seems unlikely because of the perceived red tape of working with state-funded public entities and even private schools. What Copper Bear Farms has learned from this project is that working with schools is simply a matter of communicating.

Our F2S partnership with St. Mary's Catholic School (Guthrie, Oklahoma) was created with the help of Principal Jacque Cook. We have one son who attends St. Mary's and one that attends Guthrie public school. We entered our Farm to School partnership on May 30, 2012, by way of a letter agreement. St. Mary's, a private Catholic school with a student population of 160 kids in grades K-8, has worked with us every step of the way to promote student education and activities that get kids involved with gardening and trying new vegetables. We were able to work closely with administration, teachers, and students to study lunchroom behaviors. We surveyed the school cafeteria manager and principal to ask questions about the barriers they have to buying locally. Their answers helped us determine where we can help in meeting their food needs.



St. Mary's Catholic School and Church



Third Grade in the lunch line

Roughly 25% of St. Mary's students qualify for free and reduced meals through the National School Lunch Program (NSLP). About 80 to 100 of the students eat a hot lunch each school day and the rest bring a home lunch. The day we began volunteering in the St. Mary's cafeteria, we were greeted with the delightful smells of home cooking. Mary Humpal, the Cafeteria Manager/Cook, was cooking spaghetti with meat sauce, breadsticks, and green beans flavored with ham. She was serving apples for dessert. One little girl, standing in line waiting for her tray, looked up at Mary and said, "Mrs. Mary, I don't like green beans." Mrs. Mary smiled at her and replied, "That's why I cooked them. I'm here to teach you to like them." Mary prepares 75% of her daily meals from scratch with only 25% of foods being processed. She has been cooking and looking after kids for over 20 years. Her cinnamon rolls are local legend!



From a farmer's perspective, we can help schools meet their needs of teaching kids to eat healthy fruits and vegetables. We can't do this alone or in a vacuum. We created a survey tool and asked the principal and cafeteria manager/cook questions about their ordering choices, barriers they have to buying local, concerns over farm food, kids' preferences, time to process federal paperwork, and opinions. These candid answers helped us form a better business plan.

## **SURVEY RESULTS**

Survey data revealed that cost is a major factor prohibiting schools from buying direct from local farmers. St. Mary's has a tight school lunch budget, cafeteria labor and cooking equipment constraints, a need for partially processed food, and need for year round fruits and vegetables. These were the top barriers to St. Mary's buying local produce direct from the farm. The top products St. Mary's would purchase local are partially processed salad mix, chopped tomatoes, washed baby carrots, cut green beans, and corn. The top fruits and vegetable they purchase are whole apples, whole oranges, celery, broccoli, and sweet potatoes. St. Mary's purchases primarily from a large food vendor and Hiland Dairy for fat free milk. They also rely on USDA commodities. They do not participate in the DoD fruit and vegetable program.

The top concerns of buying local are costs, smaller quantity options, pesticides and chemicals used to grow, reliability of products, and seasonality. When surveyed, kids do not seem to have a preference between fresh, canned, or frozen fruits and vegetables. When asked what the St. Mary's Cafeteria Manager thought would help kids make healthier food choices, she said parents teaching children to eat better followed by teachers teaching about healthy foods.

St. Mary's served approximately 13,436 meals during the 2012-2013 school year. They received \$10,000 (1/3 of the budget) from NSLP reimbursements and \$2,971 in USDA commodities. The entire food budget for the 2012-2013 school year was \$35,000. Food costs were \$25,000 and labor for the Cafeteria Manager/Cook was \$8,750. Seventy-five percent of students/families (roughly 75 kids) paid an average of \$333 for lunches for a total of \$25,000.



## FARM TO SCHOOL EDUCATIONAL EFFORTS

Part of this research project was enlisting the help of Oklahoma Agriculture in the Classroom to put Farm to School curriculum into the classroom. Ag in the Classroom "AITC" ([www.agclassroom.org/ok](http://www.agclassroom.org/ok)) is a state program that fuses agricultural food processing practices with classroom subjects like math, language arts, science and social studies from Pre-K through 8<sup>th</sup> grade. These lessons center on local markets, consumerism, food nutrition, and healthy eating habits.

Ag in the Classroom's Audrey Harmon was invited to speak to St. Mary's teachers on August 28, 2013. She presented books, teacher promotional tools, handouts for gardening curriculum and demonstrated how teachers could access Ag in the Classroom Smart Board lessons, videos and their 300 lessons and activities by grade. All of St. Mary's teachers came to the session and went back to their respective classrooms eager to integrate these resources into their lesson plans. For more links to resources visit Oklahoma State University at <http://www.clover.okstate.edu/fourth/aitc/links/teac.html>. USDA's Agricultural Research Services also has great ideas for agricultural science fair projects at <http://ars.usda.gov/is/kids/fair/ideas.htm>. AITC also produced *Kidchen*

*Expedition* ([www.KidchenExpedition.com](http://www.KidchenExpedition.com)) which is five 22-minute videos, hosted by Chef Jeff, explaining the benefits of growing and eating local fruits and vegetables.

The National Technical Information Service supplied free publications, curriculum, handouts, posters, etc. to St. Mary's at our request. We went online to the USDA website and requested the free materials. Everything was delivered for free and put to use throughout the school. Some of the curriculum we requested included MyPlate, Team Nutrition, Nutrition Voyage, and Fruit and Vegetable Challenge. The posters were of outstanding quality and the visuals were very appealing to children of all ages. We also thought about donating new clocks for all the classrooms. There are so many fun clocks with a fruit or vegetable theme. We wanted kids to be looking at healthy food choices as they count down the minutes for class to end and lunch to start.

St. Mary's Physical Education teacher Lisa Reese also brought agriculture to the gym. Ms. Reese created a series of farm-style exercises in her PE sessions three times a week. Students learned cherry pickers, windmills, planting potatoes, wheel barrows, and the like, in an effort to demonstrate that farmers have to work hard to put food on our tables. Educating children about health and nutrition requires many disciplines working together just like the Farm to School movement requires partnerships between farmers, teachers, students and parents.

## **ST. MARY'S SCHOOL GARDEN**

Copper Bear Farms worked with St. Mary's to create a St. Mary's School garden at the beginning of the 2013-2014 school year. One family donated a backyard and growing beds and another family donated gardening tools for the kids. We received help from another family in getting the beds tilled and amended. We taught gardening classes to all grades at St. Mary's by beginning with a session about where popular vegetables come from in the world before becoming a traditional garden crop in Oklahoma. We also taught them about local economies and working together in the community. We developed a month-by-month calendar for teachers to understand preparing a garden, planting, and harvesting and things that can be done in the winter and summer months.

The children began their fall crop as seeds in class and then brought them to the garden plot to plant. Copper Bear Farms also planted seeds in the plots in case the students' transplants didn't survive. The homeowner kept the garden watered throughout the harvest. Some crops grew and others didn't. At the end of the season, kids harvested their vegetables and had taste tests.



**St. Mary's Fourth Grade class answering questions while planting**

The Kerr Center for Sustainable Agriculture has published "A Planning Guide for Edible School Gardens" through the collaborative efforts of the USDA Cooperative State Research, Education, and Extension Service and Oklahoma Department of Environmental Quality (DEQ). This document is a must have when planning to undertake a school garden. The DEQ also has links to other edible school garden activities at <http://deg.state.ok.us/mainlinks/ediblegardens.htm>. The Oklahoma F2S program also has a link to edible garden resources at [www.okfarmtoschool.com/edible-school-gardens/Resources-for-Edible-School-Gardens.pdf](http://www.okfarmtoschool.com/edible-school-gardens/Resources-for-Edible-School-Gardens.pdf).

## **FARM TOURS**

St. Mary's Fifth Grade came to Copper Bear Farms and Ranch on October 24, 2014, to tour the greenhouse and assist in sowing seeds in the rockwool cubes, taste test different lettuces, and harvest lettuce to take back for their school lunch. We had several parents, community health representatives, and

the state ODAFF personnel on site with us to make the day very memorable. After showing the difference between iceberg and our fresh lettuces and then tasting a variety of lettuces, the kids went on to make their own salads from a vegetable tray. They devoured it like it was pizza to all of our surprise. One student remarked that he would eat school salads from now on.



Students had a relay race to sow seeds. They were taught to do it correctly and quickly. It was a fun way to break the ice for parents as we all had to use our phones to time them. The top boy and girl each won a prize. We also gave a prize to the homeroom teacher for his class participation. Parents all received ice chests to walk the greenhouse and pull living samples of lettuce to take home for dinner.



## 4. CONCLUSIONS

Our research builds upon the efforts of other Oklahoma specialty crop growers in the state. Rex and Marie Koelsch trialed leafy greens in a hoop house in 2010 using a specialty crop grant. In 2011, Drs. Brian Kahn and Lynn Brandenberger, researchers at Oklahoma State University, also trialed nine different leafy greens to see if they, too, could grow year round. Both of these projects took place at the same time as the Noble Foundation's research on extending the growing season for leafy greens led by Steve Upson. Our research went further in that we wanted to cost out the construction and alternative (hydroponic) growing system to grow leafy greens in a commercial greenhouse. We then wanted to see if we could get our leafy greens (lettuce) into a school under a Farm to School partnership. We started this project with three assumptions: 1) costs prohibit most farmers from expanding their traditional farming enterprises; 2) it is hard for local farmers to sell their produce to local schools; and 3) selling only to schools can generate plenty of income.

### **OUR BARRIERS IN CARRYING OUT THIS PROJECT**

#### Costs and Time

The first assumption about high construction costs was true. Most banks will not loan money to buy or build a greenhouse because the collateral is largely misunderstood---it's not a structure with a roof that someone could live in year-round and what would the bank do with it on our farm if things went sour? We ended up financing the entire project from personal savings. Cash flow was a constant worry. The state grant was reimbursable, so we had to come up with funding along the way to advance the construction. We then had to wait sometimes two months for a reimbursement. With the cash flow delays and both of us working full-time jobs, construction of the greenhouse would often be delayed for months. We also met with seasonal delays in construction---winter and summer. We were also building a new house and raising two young boys. We also maintained a large traditional garden (about the same size as one of our three greenhouse bays) so we could provide tomatoes to our school partner and conduct research at the school. While one of us was constantly concerned with construction and costs, the other was researching and reading Federal

reports, interacting with the school and children, maintaining the garden, and learning how to grow lettuce in a hydroponic growing system.

### Labor and Expertise

When we had time to work on the greenhouse, the issue of finding reliable labor became a huge obstacle. John not only managed the construction project, he built the greenhouse and systems himself with some of his regular work crew and other laborers he could find. If a person is not in the construction industry, it is hard to explain what you are trying to build to a contractor, what time is involved in the steps, and keep your contract costs reasonable. For example, when it came to putting the two plastic layers on the roof, we received one quote for \$10,000. John is a very determined individual. He hired four men and had the covering on in about 4 hours, for a fraction of the cost. Money, construction expertise, the right tools for the job, and available labor are all necessary to keeping the construction on time and budget.

### Expenses

Fortunately, we run our system on well water, so the costs for this expense were captured in the initial well drilling. The electrical costs to run the water pump, cooling wall and exhaust fans on an automatic thermostat this summer cost about \$160 a month. With temperatures in the 20s and 30s for a week now, the greenhouse is staying warm enough inside that the lettuce is flourishing without heat. The nightly temperatures have dipped under twenty with wind chills on our hill reaching into the teens. The water in the 1,200 gallon underground tank is roughly 40 degrees, so the lettuce roots are receiving plenty of oxygen and flow to grow.

Our nutrient costs and pH adjuster average \$100 a month. Our labor to sow seeds, transplant germinated plants into the channels, and then monitor the growing conditions has been a labor of love. Working in the greenhouse with the sounds of falling water into the tank is a relaxing way for us to spend our evening hours. We need this downtime so we don't think about all the money we have spent. These hours are also when we come up with ideas to grow bigger.

## Growing

Learning to grow indoors was a necessity for us. Our traditional garden has been plagued by pests and it seems to be worsening. The summer temperatures, lack of rain, or this year, too much rain, brought more bugs and humidity. Plus, bending over to harvest is something neither one of us really physically enjoy anymore. We wanted to grow indoor where we could control the environment, conserve water usage, and harvest while standing up. We also wanted to be able to sell to schools 10 months out of the year. We had not grown in water before, so the entire process had to be learned. We spoke to several farmers, people at Oklahoma State University, local gardening clubs, other greenhouse growers and suppliers, and read as much as we could.

We have to monitor and adjust the pH in the tank water in the morning and at night. Water has to be added to the tank as mature plants suck it up. The process of adding nutrients was also a learning process. Too much fertilizer and the plants would get tip burn or wilt. We have ruined several hundred plants trying to find the right mix for our well water. We have a lot of calcium in our water so it has helped prohibit pests and disease. We also bought hybrid seeds that do well in heat and are somewhat disease resistant. If we are plagued by pest or disease, we will use Neem Oil and Pyro Clay which are both organic alternatives to pesticides and fungicides. We lower and raise the pH in the water using Baking Soda and Vinegar. Since we grow hydroponically, we consider our lettuce better than organic. The only additive we use is fertilizer in the water that provides the basic nutrients and trace elements necessary for plant growth. Nothing is sprayed on the lettuce to preserve it for shipping.

We also had our water tested for naturally-occurring minerals and trace elements through the local county extension office. The Oklahoma State University County Extension office has helped us identify pests and leaf disease on our traditional garden and will be utilized for the greenhouse crops as needed. OSU also provided our initial water analysis. It is a guide for pH, sodium, EC and other mineral and elements that occur in our well water.

## Insurance

Schools are allowed to purchase non-processed fruits and vegetables from local farmers without having product liability or a license to sell fresh produce. We are not a food processor, so we do not have to be licensed or inspected by county health officials. As a Farm to School grower, the state asked us to complete a questionnaire describing our product handling processes to ensure good hygiene is practiced and that the growing area is free from pets, pests, debris, and harmful chemical storage. The state, as well as the school, needs to be assured that our business carries adequate insurance for personal liability on farm tours. We are in the process of obtaining product liability coverage in case someone eats lettuce that may have unknowingly been contaminated. To sell our lettuce to a distributor or processors, we have to have a \$1 million dollar product liability policy. In order to obtain product liability insurance, the carrier must see the results of independent water tests. We had a bacterial analysis performed to make sure there were no Coliforms present. We also tested for lead and nitrates. Finding an insurance underwriter for our product liability coverage is proving to be very difficult. Without the policy, we cannot sell all of our excess lettuce to a distributor. Lettuce grows quickly and can be harvested between 30-45 days. Over this, the lettuce becomes bitter and bolts.

## Marketing and Distribution

The problem with all of this legal paperwork is that we have a greenhouse full of beautiful product, ready to harvest, but nowhere to go. Our project was for research with an outcome that would better explain the pitfalls and potential for new farming revenue. We have successfully built a greenhouse and growing system and are growing almost 3,000 heads of lettuce. Our school partner is requesting product and we are delivering but are in no way depleting our crop fast enough. We put so much time and effort into researching if it could be done, we did not anticipate that we would be so successful. Our new challenge is brand placement, packaging, and transporting more than a few dozen heads of lettuce at a time. We need specialty crates to hold the big heads without damaging them and a refrigerated trailer or truck to deliver large orders come next year when the temperature gets warmer. And, along with everything else, marketing, packaging, and transporting all require more money, time, and labor.

## Pricing

Our product is not on the same scale as lettuce grown for retail at your local supermarket or Walmart. One head of our lettuce can feed 4 to 6 people with a generous salad serving. Even if we sold to a few schools and local restaurants, we would not be able to recover our start-up expenses very quickly unless we also sell to a vendor or distributor. While we can get our lettuce in schools, we can't compete with Walmart on pricing. We can't show parents that for \$3.00 a head of lettuce, they can feed a large family or keep the lettuce cut up in a baggy for almost a week. Most bag lettuce you buy at the store may keep for a day or two, if it was good enough to eat to begin with. Our lettuce is beautiful, packed full of nutrients and tastes great. We are competing with Sam's who can sell romaine the color of iceberg at .66 cents a head or Walmart that can sell a bag of processed lettuce for a couple of dollars. Our school partner is paying almost \$1.19 for a head of romaine that looks like it was shipped way after its prime. We are able to grow several varieties of lettuce to mix a salad several ways and not get bored with color or flavor. So, pricing remains elusive as we will not know how much we can make until we can freely sell to others with the proper insurance in place.

## **IN CLOSING**

Being successful at our research is a good thing. We did not expect to have such a large amount of surplus this early. The promising aspect is that it can be done and you don't have to be an expert to become good at growing hydroponic crops to feed your local community. We will work through the next phase of moving the lettuce into the greater community and earning farming revenue. The larger problem is getting local children and parents to expect more from the lettuce they are eating.

It was and is the goal of this Business Model to encourage more small farmers to invest in commercial greenhouse growing and get into the Farm to School market. Copper Bear Farms truly believes that Oklahoma farmers can meet the needs of their local Oklahoma schools by growing more crops for longer periods. As farmers and teachers come together to teach kids where food comes from, why local fresh produce is a healthier choice, and the

importance of keeping local money in local economies, we are bettering our communities through the Farm to School movement.

There are many barriers to overcome when deciding to grow primarily for the Farm to School market. The first step is communicating and having a product that is worth selling. Once you begin growing for a school, a small farming enterprise must also have a plan for the excess product that the school doesn't need. If you can find someone to buy your product, the question becomes one of pricing, packaging, distributing and selling. It is clear to us that we are on the verge of something great if we can keep the ball rolling. This project was worth the time and financial investment and has the potential to sell over 3,000 heads of lettuce in one bay each month. If we can find a distributor, we will cover the other two bays and begin growing almost 9,000 heads of lettuce for 10 months out of the year. Our lettuce is ready to sell within 30 days from the day we sow the seed. We could quite possibly grow lettuce for 10 months or a total of 90,000 heads. If sales were just a dollar a head, we would be able to break-even in 2-3 years.

We realize we have a tough marketing journey ahead of us. In the "State of the State's Health Report" (2008), Oklahoma ranks 50th or the worst state in consumption of fruits and vegetables. Only 16.3 percent of Oklahomans meet the minimum eating recommendations for fruits and vegetables (3 ½ to 6 ½ cups each day). Doctors and health officials agree that a diet high in fruits and vegetables decreases the risk of chronic diseases such as cardiovascular disease, diabetes and some cancers. Fruits and vegetables are also key to weight management.

Our school partner, St. Mary's is at the forefront of turning the tide on obesity by serving healthy, homemade meals (using only 25% processed foods). By cutting out fatty desserts, St. Mary's is also staying away from high fructose corn syrup and trans fats. As we begin to demonstrate that we can meet their lettuce demands, we hope that our local schools will see that we are invested in our community. Together, we can help make a difference in the way our children eat. If we are successful in getting children to expect more from the food they put in their mouths, they may be able to help get their parents to eat better too. As more Logan County farms begin offering local produce in Guthrie, Oklahoma, we have the potential to climb our way out of being the last state likely to eat their fruits and vegetables.

## 5. COPPER BEAR FARMS' (2014) GREENHOUSE CONSTRUCTION AND PROJECT COSTS



The picture on the left is our 8,640 SF 3-bay greenhouse when it was originally constructed in 2001 in Texas. Today, the picture on the right is our rebuilt greenhouse in Oklahoma with full hydroponic lettuce production in the center bay (30 FT x 96 FT).

When we made the business decision to take Copper Bear Farms into the year-round greenhouse business, we researched purchasing a new greenhouse, operating equipment and growing system from several companies such as Jaderloon, Crop King, Farmtek Growers Supply, and Greenhouse Megastore. All of these reputable companies have tremendous selection and most everything needed to construct and operate a greenhouse. We planned to grow crops utilizing a hydroponic Nutrient Film Technique (NFT) system. We turned to Craigslist instead of buying a new greenhouse and hydroponic growing system. Research from West Virginia University indicates that in order to make money from a commercial greenhouse, the square footage has to be at least 10,000. Our greenhouse is slightly under this square footage at 8,640 SF.

Craigslist had several classified ads for people selling greenhouses all over America. We narrowed our choices down to three used houses within a reasonable hauling distance. First, we considered a 16,380 SF hoop house in Kansas for \$16,380. It came with three Modine heaters. We considered a large structure but not this large. Another downside was the construction material for the frame. We wanted to construct a permanent greenhouse on our hilltop that can withstand Oklahoma weather. We knew the endwalls had to be substantial. To grow lettuce year-round for a school, we also needed a cooling wall and large exhaust fans. Second, we found an ad from a non-profit in Missouri that was selling a hydroponic tomato production system (buckets as opposed to channels) and single-bay (30 FT x 90 FT) greenhouse for \$20,000. We seriously considered this option because we wanted to grow

tomatoes year-round also. We ended up waiting too long to plan a trip to see it and it sold to another buyer. And third, we found a 3-bay, gutter connected greenhouse (8,640 SF) in Texas for \$25,000 that was actually growing lettuce in a hydroponic system.

We responded to the seller growing lettuce and made a trip to Texas. Upon arrival, the house looked a little weathered but was growing a full house of lettuce in June despite the Texas heat. We were sold! The one downside to this greenhouse was that it was still standing. This major factor turned out to be a blessing in disguise. Taking down the entire structure afforded us a blueprint on how to put it back together. We also rebuilt it to be more energy efficient and durable.



**May 2012 – Interior bay of the Texas greenhouse in full lettuce production**

We bought the Texas greenhouse in May 2012 and then came back a month later in June, after their final harvest to a distributor, and begin taking it down to haul back to Oklahoma. We took a 32-FT flatbed trailer with one truck and a 20-FT horse trailer with another truck. We stayed three nights and worked a crew 10 hours a day for three consecutive days. We hauled the greenhouse back to Oklahoma, unloaded the trailer, and headed back down to Texas on June 6 to get the last load. It took two men another long day to load and drive all the way back.

Purchasing a used growing system is a large cost savings. Once the crops were pulled, all of the 36-10FT and 188-12FT hydroponic growing channels were loaded onto our horse trailer for transport.



As the channels were being carried out, our crew began taking off the shade cloth and plastic covers. Once we cut the electricity to take out the equipment, it was simply too unbearable to work inside ---not to mention, the heat was just as bad outside. We disassembled the growing system and cut the PVC piping with a quickie saw or sawzall to separate it from the underground tank and the acid and nutrient automation system. The automated Crop King fertroller NFT system and microgreen tower were not included in our purchase.



Next, we dismantled the trusses, purlins, and support posts utilizing our bobcat and the backhoe on site. The greenhouse had been constructed as a permanent structure so all posts were set in concrete. We also had an independent hauler come down from Guthrie with a 32-FT flatbed trailer to take the trusses back for us.



Meanwhile, back at Copper Bear Ranch in Oklahoma...we hired a bulldozer owner-operator to expand a nearby pond and use the dirt to build up the earthen pad for the greenhouse. We then used our backhoe and farm dump truck to haul dirt and slope the sides of the pad.



Because greenhouse growing in a recirculating hydroponic (water) system is dependent on a clean, reliable water source, it was necessary to drill a water well near the greenhouse site. The site was witched the old fashioned way in April and they hit water 180 feet below the surface. We will eventually hook the well pump system to a windmill. As of today, we are still running the entire system off electricity. Our sustainability goal is to upgrade all systems to solar and wind power. We also plan to grow greenhouse crops with an aquaponic system utilizing the catfish/goldfish pond (pictured above).



Once the pad was built, we set out the grid for the footings and eventual stem walls. We also dug all the footings utilizing our backhoe. We set 68 10-FT galvanized steel posts two feet deep so the interior walls stand about 8 FT tall. Posts were driven with our tractor-mounted driver and footings poured in concrete.





With all the posts set and the footings poured and hardened, we set the trusses atop each with our backhoe and bolted them in place.





We ordered new electrical service from Central Rural Electric Cooperative (CREC) in June but they did not get to us until October 2012. We had to have significant construction on the site before the electricity company would clear, set their poles, and bring their line up to our ranch. Once service was connected, we dug trenches from the meter to the greenhouse using our backhoe. We have the greenhouse on a separate meter from the house so we can track business utility expenses. We had to spend a lot on fuel for the generator in the months leading up to electricity service.



With electricity infrastructure, we also laid pipe for plumbing in the same trench. Both plumbing and electricity are each in their own PVC piping. The electrical conduit is gray and the plumbing is white. We then rented a trencher to dig the water lines in each greenhouse bay.



**John working the trencher while Ava inspects**

After the water lines were installed, we realized we had an underground leak. The connectors did not hold up well to the water pressure. To locate the leak, previous trenches had to be unearthed by hand. A leak was found where a defective connector had burst. We ended up replacing all of the connectors.

We asked the local cement plant if we could haul off their gravel wash (the stuff that comes out of the cement truck after cleaning it out) for the flooring in the greenhouse and along the frontage of the greenhouse. They were happy to donate gravel wash at no charge. We used our farm dump truck to haul it back and forth the 40 minutes round trip. We used our skid steer to move it into the bays and tamp it down.



Stem wall forms were constructed in stages. The west wall footings and stem wall went in last so that electrical lines could be buried in the same trench and we could also move the skid steer in and out to move things and haul out concrete forms.



**A laser level was used to ensure all stem walls were at the same height.**



All of the footings poured and forms are being taken off the interior bay stem wall.



The greenhouse stem walls are in except for the entire west wall.



It took many trips to spread the gravel wash along the newly formed bay floors. We then set about framing in the west end wall with metal studs. We hung the two exhaust fans and heater exhaust before installing the French door entrance.



Mother Nature flooded us out just as we were putting up the metal studs on west end in the south bay. In hindsight, we should have installed French drains in each bay.



Lighting was installed from the trusses in the center bay and gutters laid out to repaint in aluminum paint. We found a local business that was more than happy to let us purchase their old lighting and fluorescent bulbs at a reduced rate. We were also able to get replacement bulbs through EMI (Environmental Management Incorporated) since they are where environmental hazards are brought for destruction, this includes old light bulbs.

Again surfing Craigslist, we located a storage container for our construction and greenhouse storage needs. It serves dual purposes. It will be a wind block on the north bay and once we are fully operational, the storage container walls will be foam spayed, an air conditioner mounted, and the interior will be turned into a cold storage room for summer vegetable production.



For added protection along our northern wall, we hung sheet metal. We also put sheet metal on the end walls and as half walls in the interior.



**A crew member is installing sheet metal along the north wall and around windows.**



Pulling truss cross bars through the center bay adds structural support.



Steel studs were damaged in straight line winds. It also shattered glass windows in the three windows on the east end wall.

Our hydroponic system works off a 1,200 gallon tank for both the delivery and return water for our growing system. We decided to bury our tank in the center bay of the greenhouse. This prohibits algae growth by being open and exposed to the sun. It also keeps the water temperature roughly that of ground temperature.



The tank was buried and backfilled with sand and a gravel. A riser was added to make it easier to add nutrients, fill and empty. Burying the tank eliminates an open water source and takes up less room.

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With the tank in, we set about putting sheet metal on the east end walls.



The sheet metal was installed by John using a two-man crew. The metal was measured, screwed in place, and then cut with a sawzall along the upper ridge. Edging was then screwed in place along the top and around the windows for additional insulation and aesthetics. Wiggle-wire tracking was also put down to hold the poly covering in place. Each bay is separated by a gutter system.



Flooded for the second time.



Interior short walls of sheet metal and interior doors were added.



View of west endwall. Open spaces are roll-down garage doors.



View of east / back side of greenhouse before the cooling wall pads were installed in the middle bay



Fires threaten our ranch.



Clear poly twin wall (8mm) was cut and installed along two interior bay walls and the top half of the south-facing wall. The clear material allows for better light penetration and insulation. It is screwed into metal tracking.

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View to the south from the center bay with the twinwall going up.



With the interior walls up, we laid black matting on the gravel wash floors. This will prohibit weed growth and act as a passive heat collector in the winter months. Tables for the growing channels were then bolted and sloped to allow water to drip back down to the main pipe (which is fastened to the interior walls) and back into the water tank to be recirculated. The tank and cooling wall are next to each other along the east end wall.



Early morning teamwork: Four men rolled out one layer of plastic, and then another, under John’s instruction. He mounted a bar for the plastic roll and then two men on each side of the center bay walked along the gutter (where John is standing) unrolling the large sheet of plastic. They fastened each layer under wiggle wire in tracks screwed to the gutter system. To save money, we experimented with construction grade visquine. The two layers of plastic were inflated with a small fan from inside the greenhouse bay to strengthen them and provide a pocket of air insulation.





Two weeks after we laid the plastic covering, straight line winds in excess of 70 mph buckled the cheap plastic and the roof shredded to ribbons. We are fortunate that we did not have anything growing at the time. We set about cleaning the greenhouses and pumping water for the third flooding episode. Construction grade visquine is not a suitable alternative for greenhouse film (instead, use 4-year infrared tri-layer 6 mil poly).





With the new greenhouse plastic covering installed, we added a shade cloth on top and bolted the grommets in place. The new covering has continued to hold up in subsequent storms. The next step was to set up the growing system for the germinated seeds we started sewing indoors.





The trays were disinfected with bleach and cleaned by hand. The emitter lines were installed and tested in each growing channel and the 1,200 gallon tank was filled with chlorine water to flush the entire growing system. The tank was then refilled with fresh water and adjusted for a pH of 5.5. After each harvest or every 30 days, channels are disinfected and new starts planted. The tank water for the growing system is flushed every week. We are maintaining pH between 5.5-6.0 and 1.8-2.0 EC (electrical conductivity).



The large water return pipe runs along the inside wall and back into the tank. The smaller PVC line on the floor takes water from the tank and feeds the emitter lines that water each growing channel. As the water passes over the lettuce roots providing oxygen and nutrients, the water that is not absorbed by the roots then flows from the channel into the large PVC pipe and back into the tank. This aerates the water and keeps oxygen in the tank. Water must be monitored at least twice a day, morning and night, to ensure the pH of the water remains steady. Nutrients have to be added to the tank each time the tank is filled with fresh well water. We take the pH and electrical conductivity readings with a monitor.



The cooling wall is saturated by water and runs on a continuous loop from a stock tank. The tank has a float on it to allow water to automatically be pumped in so it doesn't run dry. Even with two large exhaust fans and 6 circulating fans, the cool air pulled through the cooling wall only reduces the bay about 10 degrees cooler than the outside temperature. The entire cooling and exhaust system is set to automatically turn on and off with a temperature-controlled thermostat.



With the construction complete and the growing system tested, we began sowing seeds in early August and had lettuce transplanted and growing in the channels by August 11. We ordered our lettuce seeds from Johnny's and keep them in a plastic container in the refrigerator. We planted seeds in Grodan rockwool cubes. The plastic trays were put under growlights to test germination rates. We also started seeds in the greenhouse to see which method grew faster seedlings. We will have to rely on the grow lights more in the winter months when days become shorter.

We are recording the dates of seed planting, days to germination, type-variety-seed lot, number of days for the plant to reach a stage of transplant into growing channels and eventually the dates for harvest and delivery. We have trialed different vegetables and herbs to see what will grow in the same conditions as lettuce. Basil and cilantro are flourishing alongside our romaines, bibb and leaf lettuces. Cucumbers and squash are also doing well with many blooms. The fans have been cross pollinating the flowering plants including the cherry tomatoes we are also growing in the same bay. We have starts of broccoli, Brussel sprouts, and green beans growing well in the same water conditions as the lettuce.



We are transplanting about 1,000 more plants in two weeks and harvesting about 400 heads of mature lettuce. All growing channels are planted and we have about 3,000 heads of lettuce and herbs that are rotating through the growing system.

Overall, this project took two and a half years and cost over \$160,000. We experienced delays due to cash flow, working other full-time jobs, building a new house at the same time, raising young children, Oklahoma weather, and difficulties finding reliable laborers with construction experience. Would I recommend taking on this ambitious business development to other farmers, absolutely! I say this enthusiastically, but, the key to building this project was in John's construction and management experience. We also have all of the large construction equipment necessary to build. Our ideas were bounced off friends, a professional plumber and a licensed electrician, and they in turn, helped to wire and connect the systems. These costs are included in the construction labor line item. The project had its ups and downs, but overall, the greenhouse and systems are producing a remarkable amount of lettuce with minimal labor. If we can grow during the same months that school is in session (August-May) we will be able to supply lettuce to local schools year-round--- school year, that is. Our next challenges are marketing and finding ways to distribute our fresh, hydroponic lettuces. This will be the subject of our next grant proposal.



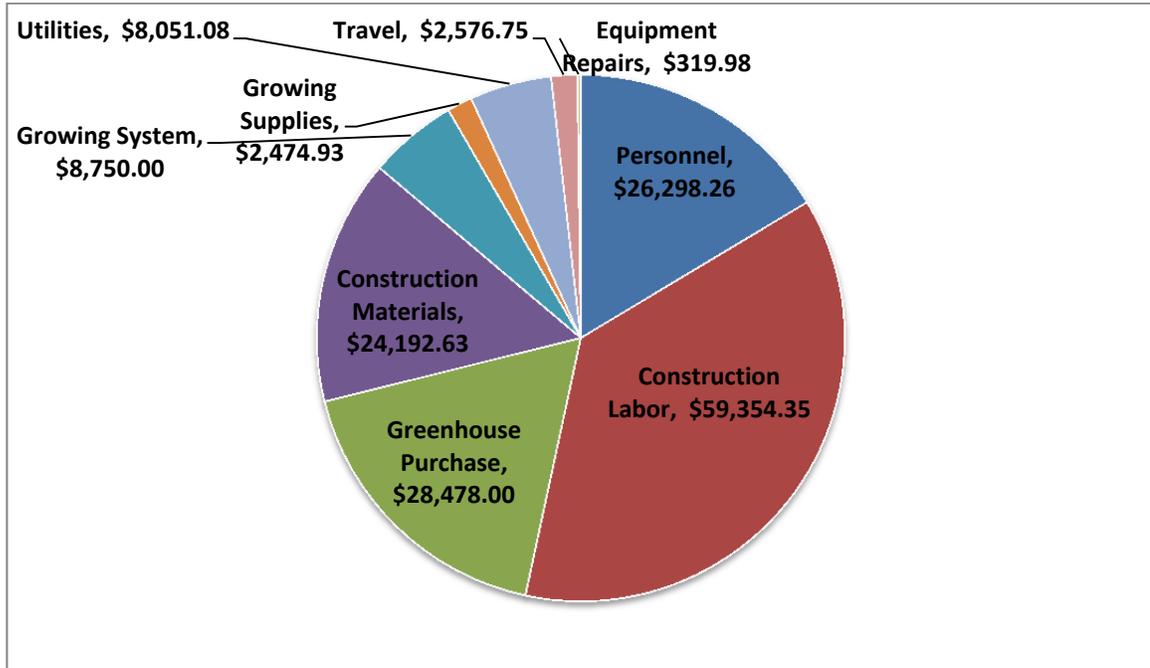
## PROJECT EXPENSES AND COSTS BY CATEGORY

SELF SERVING A HEALTHY LIFESTYLE PROJECT	
Project Period: March 2012 through September 2014	
TYPE OF PROJECT EXPENSES	AMOUNT
<b>Personnel (\$26,298.26)</b>	
Project Administration	\$ 21,188.26
Crop Production for School Trials	\$ 5,110.00
<b>Construction Labor (\$59,354.35)</b>	
Cost to dismantle greenhouse in Texas	\$ 9,796.02
Construction Management/Labor and Owner-Operated Equipment Usage	\$ 30,099.33
excavate and haul dirt for pad	\$ 1,160.00
dig footings and set posts (68-10FT)	\$ 3,876.00
footings	\$ 1,615.00
set trusses and trenching	\$ 2,174.00
haul gravel wash and pile	\$ 1,087.00
trenching and water line installation	\$ 1,087.00
general construction labor	\$ 8,460.00
<b>Greenhouse (\$28,478)</b>	
90 FT x 96 FT - Greenhouse (3-bay)	\$ 25,000.00
25 FT Cooling wall	\$ 2,700.00
2 - 48 IN exhaust fans	\$ -
2-boxes of 6 mil poly (30FT x 100FT)	\$ 698.00
6-18" circulating fans	\$ -
<b>Greenhouse Construction Materials (\$24,192.63)</b>	
gravel wash provided free by local cement plant	\$ -
concrete	\$ 2,255.29
windows (15) purchased from Craigslist	\$ 750.00
sheet metal, trim, lag bolts, screws	\$ 9,621.32
French doors	\$ 250.00
1200 gallon tank and riser	\$ 1,125.65
interior and garage doors	\$ 566.45
lumber	\$ 501.01
8mm Clear Poly 6FT x 12FT sheets	\$ 2,783.86
2 rolls 6mm poly sheeting (32 FT x 100 FT)	\$ 765.94
24 8-ft fluorescent lights	\$ 1,500.00
propane tank (from Craigslist)	\$ 800.00
misc.	\$ 1,756.71
water lines and boxes	\$ 1,282.98
trencher rental	\$ 233.42

<b>Growing Systems and Operation (\$8,750)</b>	
Six NFT hydroponic lettuce growing systems (36-10 FT channels and 188-12 FT channels) were included in package	\$ 8,750.00
<b>Growing Supplies (\$2,474.93)</b>	
2-48 " x 36" grow light included in package	\$ 455.00
2-new inflation blowers	\$ 160.00
3-1/2 sump pumps, plumbing and lights	\$ 383.55
Blue Lab Combo Meter	\$ 200.00
Books and DVDs	\$ 97.92
Case of Lettuce Crispers	\$ 106.77
Growing Media (cubes and trays)	\$ 308.92
Seeds	\$ 600.20
water test	\$ 15.00
sprayer	\$ 19.45
nutrients	\$ 128.12
<b>Travel (\$2,576.75)</b>	
hotel	\$ 389.85
gas (fuel and for generator)	\$ 2,186.90
<b>Utility (\$8,051.08)</b>	
water well installation, pipe, fittings, pump	\$ 4,872.08
electricity installation	\$ 3,179.00
<b>Equipment Repairs (\$319.98)</b>	\$ 319.98
<b>Total Project Costs</b>	<b>\$ 160,415.98</b>
(Includes school/student research, project administration, construction, trialing greens, and production - 2 1/2 year project)	
<b>ODAFF-SCGP Grant Amount \$76,322</b> <b>ODAFF-AEDP Grant Amount \$10,000</b> <b>COPPER BEAR FARMS Cash Match \$74,094</b>	

## BREAKDOWN OF PROJECT COSTS BY CATEGORY

COSTS TO BUILD AND OPERATE  
A COMMERCIAL HYDROPONIC GREENHOUSE (90FT x 96FT)



## PROJECT MANAGEMENT

Copper Bear Farms is owned by Lisa Kraft and John Adams. John has over 23 years of experience in running a farm and longhorn ranch as well as 15 years of general construction management for a large Oklahoma firm before going into business for himself in 2006. As a professional welder and fence builder, John spends most days building custom gated entries, farm fencing, and metal buildings. Lisa administered this project for Copper Bear Farms, worked with St. Mary's and wrote the Business Model. She has over 18 years of federal grants and contracts experience.

## REVENUE PROJECTIONS

With one bay growing 3,000 heads of lettuce every 30-45 days, we estimate that we can generate at least \$3,000 each month in gross revenue if we sold each head of lettuce for \$1.00. With the ability to expand production into the other two bays as soon as we pick up a distributor, we have the earning potential of \$90,000 a year if we grow 10 months out of the year. The cost per unit will be adjusted as we negotiate for regular distribution. At the top end at \$3.00, we could potentially gross \$270,000 a year. This would mean that we would sell direct to restaurants as a primary market rather than to a produce company or distributor. It is safe to estimate that we will be somewhere in the middle once fully operational.



**Copper Bear Farms and Ranch is home to Big Head, a Texas Longhorn.  
He reminds kids to "Eat Their Greens."**

## **Appendix C: Self -Serving a Healthy Lifestyle**