



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

## **Feasibility Study for Mixes of Different Sales Options for Rural Local Food Collaborators**

Holly Gatzke<sup>a</sup>®, Margaret Cowee<sup>b</sup>, and Thomas Harris<sup>c</sup>

<sup>a</sup> Associate Professor, Cooperative Extension, University of Nevada, Reno, PO Box 728, Caliente Nevada, 89008-0728, USA. Tel: 775-726-3109 ext. 106. Email: gatzkeh@unce.unr.edu

<sup>b</sup> Food Systems Economist, Cowee Consulting, LLC, Reno, Nevada, USA

<sup>c</sup> Professor, Economics, College of Business, University of Nevada, Reno, Mail Stop 204, 1664 N. Virginia Street, Reno, Nevada, 89557-0024, USA

---

---

### **Abstract**

Collaborative local food distribution and business enterprise combinations were studied for agriculture producers in remote, low-populated rural communities in Nevada. The research assessed the supply of agricultural products and compared the feasibility of enterprises for local sales and value adding and distribution to Las Vegas. Consumer interests and demand for local food indicated potential demand for a commercial kitchen, café and storefront, a local buying club, Las Vegas product distribution, or a combination of all. The agriculture producers have used the results to plan collaborative distribution into differing enterprise mixes to maximize profits and efficiency, and meet regional consumer demand.

**Keywords:** local food, collaborative distribution, food supply chain

---

®Corresponding author

## Introduction

A group of producers in Lincoln County Nevada recognized the need to collaborate to distribute and sell their local foods. High quality local food production has started in the region as a result of a series of producer to chef activities and the results of studies educating production techniques and a strong demand for local food in Las Vegas, Nevada (Cowee et.al. 2009). The producers recognize that the transportation costs are high since the Las Vegas market is 150 miles away and that local markets were limited due to the sparse population in their rural area (5300 people in 10,000 sq. miles). Producers working together are a means to remain viable but it was unclear what markets to target to make the best use of the required infrastructure for those markets.

Value added enterprises were added into the evaluation to determine the feasibility to prevent losses, extend shelf life and/or add value. Examination of local markets show that consumers pay nearly the same price for small packages of produce compared to large bulk volume sales (Gatzke 2012). A health certified commercial kitchen and process is required to gain the value from packaging in Nevada. During the peak growing season, product losses from 20% to 60% have been incurred by producers from not getting the ripe product to market in addition to losses incurred via products that do not meet the aesthetic properties necessary for premium pricing. Processing them into longer storage products prevents the losses but incurs costs for time and facilities. Value-added products can also be sold year-round, generating cash flow during the slower off-season months.

The enterprises under consideration were a value-added café and storefront in Lincoln County to sell locally produced food products; a commercial kitchen that could offer processing, co-packing, and/or a selection of educational classes; the potential for a Community Service Agriculture (CSA) program and/or regular sales of raw and further processed food products to residents of Lincoln County; and a CSA program and/or sales of further processed items at farmers markets to consumers in Las Vegas. The goal of the study is to provide farmers the initial data to make informed decisions on the demand and costs for differing distribution and marketing options to collaboratively sell their local foods. The study allows the group to select a combination of enterprises that is feasible for the remote rural community while fitting the group of producers that are willing to collaborate.

## Methods

Supply and demand data were collected through producer and consumer surveys that assessed production capacity and the local food attitudes and desires of consumers in four small Lincoln County communities and the nearby metropolis of Las Vegas. Surveys were mailed to all producers and emailed to a local mailing list. Lincoln County resident survey data was collected through paper survey and a link to an online survey was sent to a random sampling of 853 households in Lincoln County in September 2012. A total of 224 surveys were returned and considered complete for analysis, a response rate of 26.2%. Logit regressions were used to examine likelihood of a binary response for an average person from the sample population on the Lincoln County survey data. Las Vegas surveys were conducted in-person at the Bet on The Farm Farmers Market in two different weeks in September 2012. This was the only market

servicing high-end chefs and “foodies” at the time. The attendance of those markets was low in those weeks and so there were only 38 surveys completed. Cost estimates for different enterprises were estimated by collecting costs of startup equipment and building from available commercial packages.

## Results

### *Supply*

Producer responses indicated production potential of more than 30 different crops providing produce valued at \$143,000 with plans for future expansion to over \$273,000 in the next two years. There was a low response rate (10 of 108 farmers) which matched the low number of farms involved in local food. Local food production is new to the region with the introduction of production test plots in 2008. The production area has matched very close to the survey data projections collected.

Producer respondents indicated preference for the market that provide the best return (70%), and then 60% choosing farmers markets and Las Vegas Stores, 50% to a local café, marketing and promotion and collaborating on transportation. These results indicate an openness to targeting the market that will provide the greatest return. Fifty percent were interested in creating value added products.

### *Demand –Lincoln County Residents*

The definition Local food in Lincoln County was considered by 38% of respondents as food grown in their region and 26% as grown by a farmer or rancher they know. Only 4% of the Nevada population defined local as being grown/raised by a farmer or rancher they knew.

The importance to purchase local foods was rated by 54% of respondents as a value of 6 or higher (1=not important, 10 =extremely important). These ratings are consistent with a recent statewide survey of Nevada residents. When selling in the rural area, the farm should be identified and build personal relationships when needing to gain more sales. When marketing to Las Vegas, identification of being grown in Nevada likely will achieve initial support.

The likelihood of any Lincoln County resident being familiar with a CSA is only 28.8%. The results show the average resident of Caliente or Alamo has a higher probability of being familiar with a CSA than residents from Pioche or Panaca. The only statistically significant demographic indicator is education. Income, gender, age were not significant indicators for knowledge of CSA (Table 1.). Initial support for a CSA likely would come from higher educated residents. Less than 21% of Lincoln County consumers indicated they would join a buying club (CSA).

Lincoln County survey respondents have low expenditures on produce (80% spent less than \$120/ month) and groceries (52% between \$201- \$400; 28% \$401- \$600 per month). Respondents indicated interest in local produce (86.7%), a limited café featuring healthy options (55.7%), local processed foods (45%), and various educational classes. The low expenditures on

produce and low population will limit the potential sales in the county far below production potential and so outside sales are needed.

**Table 1.** Demographics and Location Indicators of Being Familiar with the Term CSA

<b>Lincoln County Resident likelihood of being familiar with CSA = 0.288</b>								
	<b>Education</b>	<b>Income</b>	<b>Gender</b>	<b>Age</b>	<b>Alamo</b>	<b>Caliente</b>	<b>Panaca</b>	<b>Pioche</b>
Change in Probability	0.096	-0.041	0.09	-0.005	0.272	0.18	-0.1	Omitted
Standard Errors	0.045	0.021	0.08	0.014	0.131	0.108	0.111	Omitted
Statistically Significant	YES	NO	NO	NO	YES	YES	NO	Omitted

Data showed the strongest support for local products and the importance of buying local products was in the City of Caliente. Caliente is centrally located for Lincoln County residents and serves as the central shopping location. Pioche would be a second location to consider based on strong interest in local products. Pioche appears to be a good candidate for farmers' market sales, particularly of value-added pre-packed produce or café items. Estimates of produce purchases were made based on population, produce spending ranges and differing percentage of the market for Caliente and Pioche to show potential customer support.

#### *Demand - Las Vegas*

A series of surveys have shown Las Vegas farmer market participants and chefs have high interest in purchasing local fresh produce and generally do not know produce can be supplied from Nevada farms (Cowee et al. 200, Curtis et al. 2010). The survey in this study had a low response but the data results matched these previous studies. This indicates a strong market potential in Las Vegas but a need for marketing about Nevada grown food.

## **Conclusions**

The study provided agriculture producers initial data comparing costs and customer support to narrow and target planning for enterprises that improve returns in collaborative distribution. A CSA would have low startup costs but the consumers' lack of understanding indicates there will be limited support in Lincoln County for a CSA program. To gain a successful CSA an educational program would have to be launched before the enterprise. The enterprises that require a commercial kitchen (limited café, preparation of commercial products for onsite sales and/or some educational classes) would be supported locally and in combination may provide business income needed to pay for the cost of developing a commercial kitchen. This operation likely would receive the strongest support if located in Caliente. The low population and resulting limited business would require the facility to include several of the enterprises such as store front, limited café, commercial processing and possibly education classes to pay for infrastructure and staff costs. It was also determined that there may be too much produce to sell within the county and so additional distribution to Las Vegas would be needed or distribution could be focused solely to Las Vegas.

The information provided from this study changed the collaborative group's focus in discussions to more educated planning and acquiring more details in target areas. One producer dropped out of the group and changed his career path because the return and the location would not likely meet his needs. Another producer took the lead for the group by building and sharing a small on farm processing facility and a cooler truck to deliver to Las Vegas. He was the largest farmer and recognized he needed the simple processing to make his farm viable. The producers' discussions continue to use the data as they plan how a more diverse facility can be built in a public location as the collaborating farms' growth demands it.

## References

- Cowee, M.W., K.R. Curtis, R. Morris and H. Gatzke. 2009. Buying Local: Perceptions of High-End Chefs in Nevada. University of Nevada Cooperative Extension Fact Sheet-09-41.
- Curtis, K.R., M.W. Cowee, M. Velcherean, and H. Gatzke. 2010. "Farmer's Market Consumers: Is Local or Organic Important?" *Journal of Food Distribution Research* 41(1): 24-27.
- Gatzke, H., 2012. Developing a Local Food Industry in Nevada. University of Nevada Cooperative Extension Special Publication 12-05.