



Rural Families' Adaptions to an Impending Food Desert



Dustin Spencer, Denver Rogalla, Nida Zia, Wayne C. Miller, Brian N. Griffith, Haylee Heinsberg
Center for Rural and Community Health, West Virginia School of Osteopathic Medicine, Lewisburg, WV

Background

Food deserts are urban neighborhoods or rural towns without ready access to fresh, healthy, and affordable food. Instead of supermarkets and grocery stores, food desert communities may have no food access or are served only by fast food restaurants and convenience stores that offer few healthy, affordable food options. Food deserts bring a unique set of health-related challenges to their residents. Limited access to healthy food, caused by food deserts, are significant contributors to obesity and chronic disease. It is estimated that 2.3 million rural Americans live in food deserts.



Alderson is a small rural town in the southeast region of the state of West Virginia, which sits in the center of Appalachia. Alderson recently became a food desert, by all definitions, when its only grocery store closed. Alderson community members

rallied together to proactively face this impending food desert. They organized themselves by creating a food hub and opening a Green Grocer food coop. **The purpose of this study was to learn how the Alderson community responded to the emergence of the new food desert, when the town's only grocery store closed.**

Methods

- A total of 155 households (49%) in Alderson, WV (population 1,184) were surveyed after losing the only grocery store in town on December 31, 2014, causing a rural food desert.
- Adult heads of households were surveyed for location of grocery shopping, distance traveled to grocery shop, use of local restaurants, SNAP use, and local food pantry use; as well as alternate means of preserving or obtaining food (e.g., canning, freezing, vegetable gardening, and raising livestock).
- Community food acquisition and storage behaviors were compared before and after the grocery store closure and emergence of the food desert.
- ANOVA and t-tests were used to compare group numerical data.
- Two group response rates were compared by testing the equality of two proportions.
- Categorical data were analyzed with the Chi-square or frequency distribution analyses.
- Group averages are reported as mean \pm SEM.
- Significance for all analyses was set at $p < 0.05$.

Results

- The number of long-distance grocery shopping trips families made after the food desert (3.3 ± 0.4 trips per month) did not change significantly ($p = 0.16$) from the number that were made before the food desert (2.8 ± 0.3).
- 12 families began gardening and 5 families began preserving food after the food desert. The practical significance is that 17 families changed their food acquisition and storage practices due to the food desert.

Results (continued)

Food Desert's Influence on Home Food Production and Storage

Variable	Before	After	Change
Raise a vegetable garden	58 (37%)	70 (45%)	12 (+21%)
Raise livestock for meat	14 (9%)	14 (9%)	0 (0%)
Raise livestock for dairy	2 (1%)	2 (1%)	0 (0%)
Store canned or packaged food	70 (45%)	70 (45%)	0 (0%)
Preserve food items	47 (30%)	52 (34%)	5 (+11%)

Figure 2: Favorite Restaurant

Restaurant managers reported that the emergence of the food desert did not affect their restaurant menu prices, customer patronage, food costs from wholesale suppliers, or volume of sales.

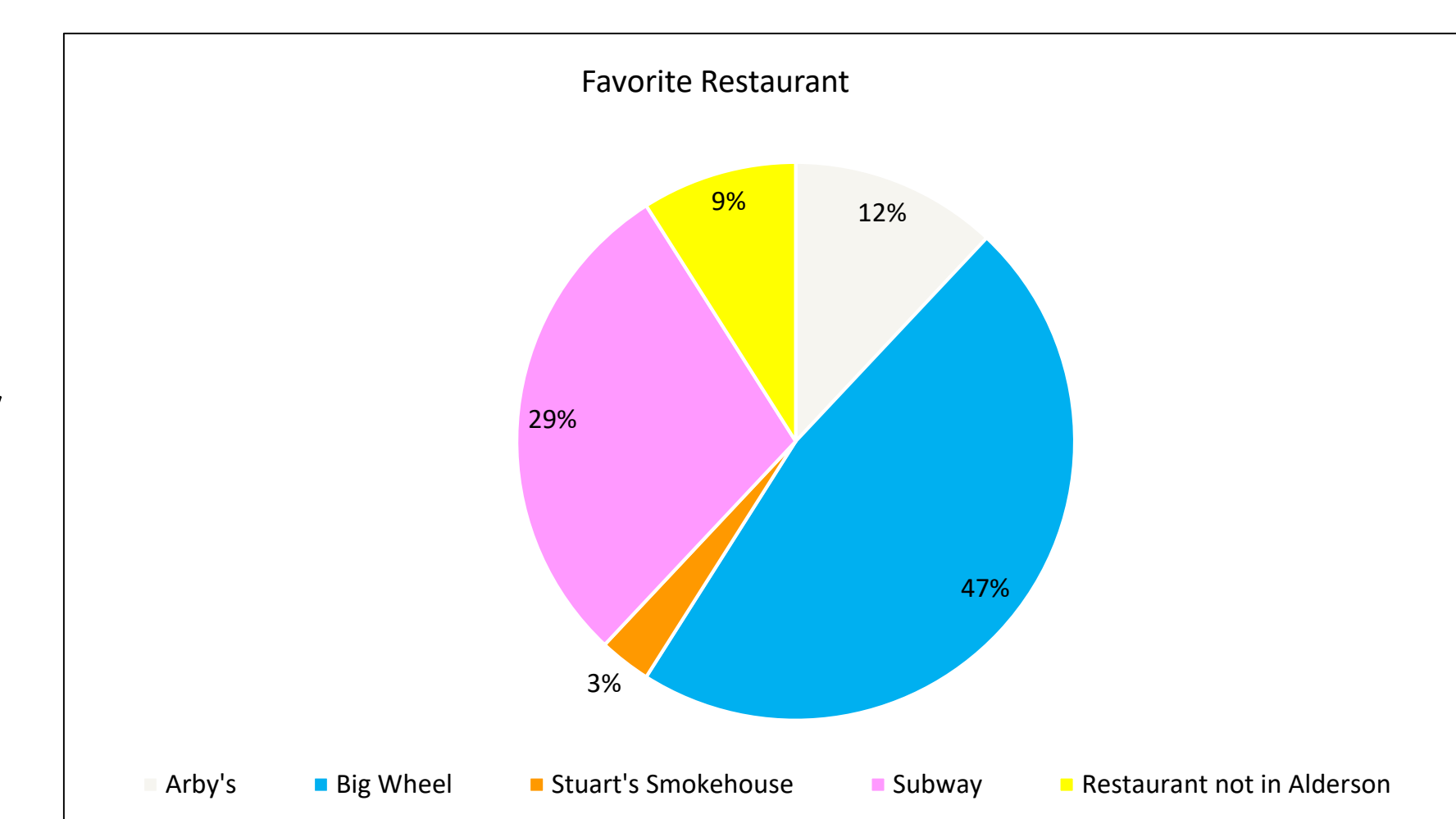


Figure 3: Map of Alderson, WV Location

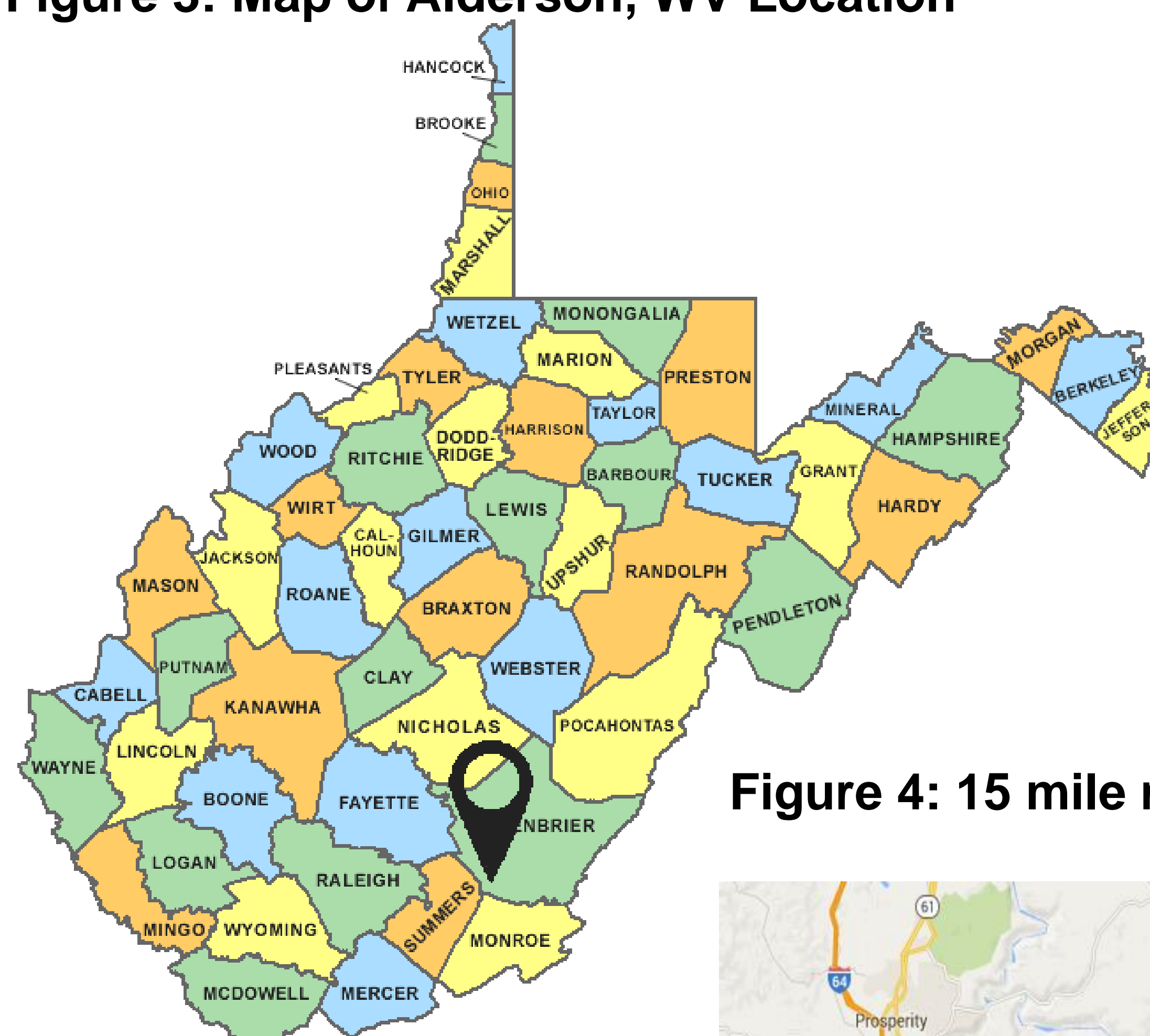
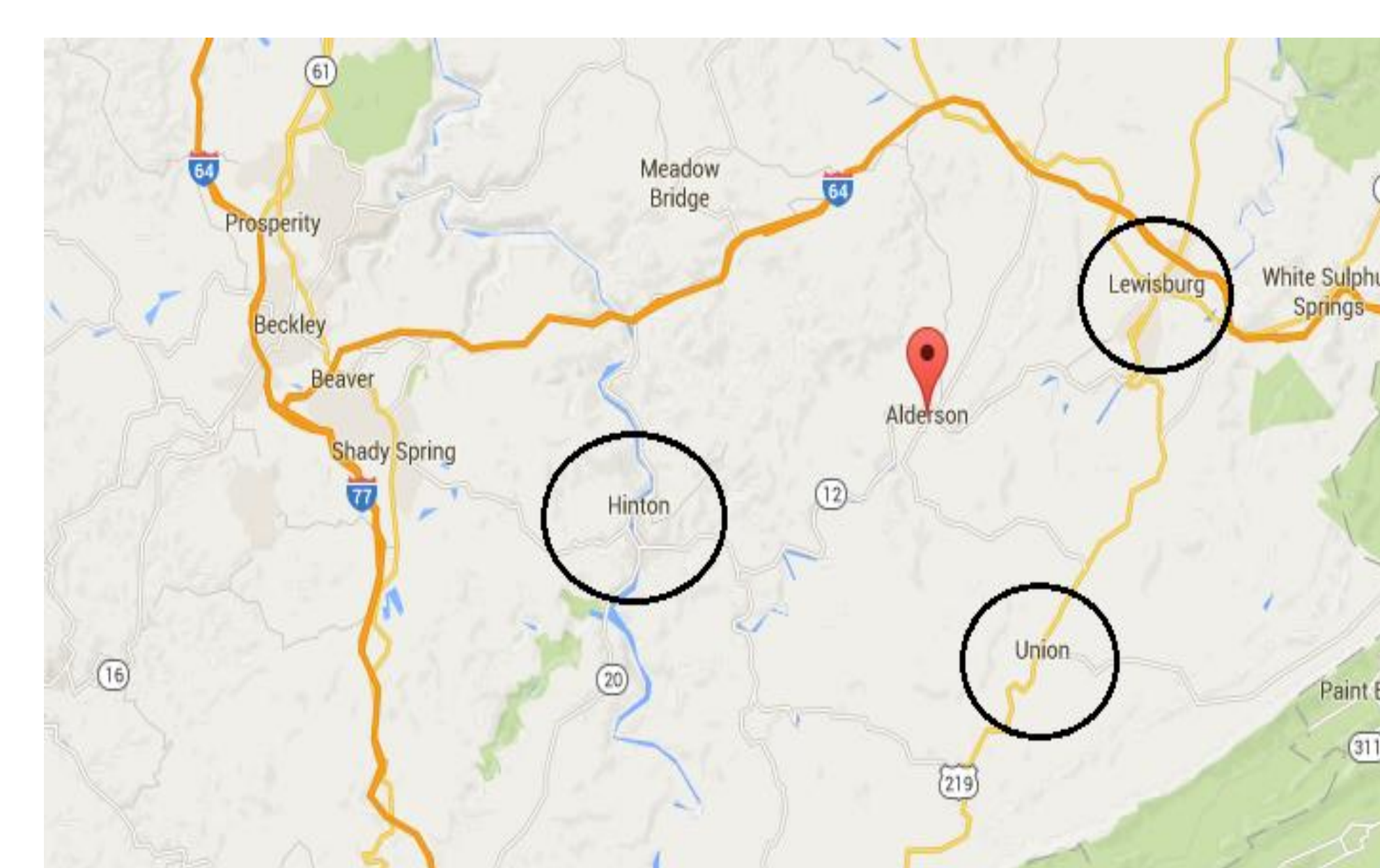


Figure 4: 15 mile radius from Alderson, WV



66% of the participants choose to shop at Lewisburg or Hinton for groceries instead of shopping at the Green Grocer food coop.

Results (continued)

Restaurant Effects

- Eating at local restaurants (3.0 ± 0.5 meals per week) did not increase significantly ($p = 0.85$) after the food desert (3.1 ± 0.5).
- Food desert costumers asked that restaurants sell non-menu items for use in home meal preparation (i.e., eggs, milk, tomatoes, onions, peppers, potatoes, and fruit).



Food Insecurity

- Almost half of the 44% of the town that relied on the food pantry for food, depended more on the pantry for fruit, vegetables, and meat after the emergence of the food desert.
- The number of families that raised a vegetable garden increased by 21% due to the emergence of the food desert.



Conclusions

- Families caught in a new food desert were forced to travel 15 miles or more to obtain groceries.
- The food desert caused low-income residents to rely more heavily on food pantry assistance and to turn to home gardening and food storage to secure food.
- The emergence of a new food desert did not cause a change in family eating patterns at local restaurants.
- The emergence of a new food desert forced families to seek fresh fruits and vegetables from unusual sources.

Acknowledgments

Support for this project was provided by the West Virginia School of Osteopathic Medicine and the West Virginia Clinical and Translational Science Institute