Agricultural Production and Food Systems

P1 Assessing Food Offerings Among Emerging Food Outlets in Northern Arkansas

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Background: Limited study of the availability of food in nontraditional food stores (Pharmacy and convenience stores) has left a gap in the understanding of the food environment in Arkansas. Recent corporate action among nontraditional food stores suggests that consumers are looking to these stores as sources of healthier food.

Objective: The question that guided this work asked, "Are there differences in food offerings among non-traditional food outlets, such as CVS and Walgreens, and how do those offerings compare to the offerings of convenience stores, in Arkansas?" Understanding differences among these food store types may be useful for subsequent efforts to improve equitable access to healthy food across Arkansas.

Study Design, Setting, Participants: This study used an observational design to assess offerings in non-traditional food outlets. The Nutrition Environment Measures Survey (NEMS) assessment tool was used to document and score the availability of food products in 54 stores in the northern half of Arkansas, including 27 pharmacy stores and 27 convenience stores within a 2.5 mile radius.

Measurable Outcome/Analysis: The NEMS tool gathered availability data across 13 measures, including: fruit, vegetables, dairy products, meat products, frozen dinners, baked goods, bread, beverages, chips and snacks, and cereal.

Results: Pharmacy stores had a higher mean availability score ($\bar{x} = 19.0$) than convenience stores ($\bar{x} = 7.2$). A paired sample t test indicated that the difference in mean availability score between the store types was not likely due to chance [$t(26) = 16.01, P < .001$].

Conclusions: These findings suggest that pharmacy stores offer a healthier supply of foods as compared to convenience stores. Nontraditional food stores may be important intervention sites as consumers look to these stores for an increasing proportion of their food purchases. Further study may help to uncover differences in rural and urban food supply in Arkansas, and may have positive consequences for better understanding best practices for increasing access to food across the state.

Funding: None.

P2 Benefits of Farmers' Markets for Food Access: Results from a Needs Assessment in a Rural Southern County

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Background: For a Centers for Disease Control and Prevention obesity prevention grant, a needs assessment was conducted in a rural Southern county with 40% adult obesity. The purpose of the grant was to reduce adult obesity rates through community interventions designed to improve access to healthy foods.

Objective: The objective was to identify barriers and facilitators for access to healthy foods.

Study Design, Setting, Participants: Adult county residents were recruited to complete surveys and participate in focus groups. Professionals were recruited for key informant interviews.

Measurable Outcome/Analysis: The survey included questions about access to healthy foods such as local availability and gardening. Descriptive statistics were used to examine survey data. Focus group and interview questions included perceived availability of healthy foods. Focus groups and interviews were transcribed verbatim. Two researchers coded the transcripts and developed themes using inductive content analysis.

Results: In summary, 1,085 surveys, 9 focus groups with 61 adults, and 25 interviews were completed. Focus group participants identified the county's 2 Farmers' Markets as community assets for healthy food, especially for residents who lived in the communities where the markets were located. A major theme was the importance of supporting local businesses such as Farmers' Markets and farmers. Over half of survey respondents (55%) reported buying fruits and vegetables at these markets. There were differences in reasons why survey respondents and focus group participants did not shop at the Farmers' Markets. For survey respondents, the biggest barrier was that the markets were not open during the times they grocery shop (26.7%). For qualitative interviews, participants identified lack of Electronic Benefit Transfer (EBT) acceptance, distance, and lack of variety as major barriers for not shopping at the Farmers' Markets.

Conclusions: These results indicate that Farmers' Markets can provide access to fruits and vegetables for small communities; however, economic and environmental barriers can limit market usage by limited-resource consumers.

Funding: Centers for Disease Control and Prevention.

P3 Community Opportunity in New Jersey: The Role of Food Choice, Farm Viability, and Local Economy in a Sustainable Food Future

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Background: Healthy food access can improve urban community health outcomes, and requires farm viability

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for sustained fruit and vegetable production. A nutritious food future depends upon regional food and agricultural systems to meet community needs, but seasonality limits affordable healthy options, especially in urban areas.

Objective: To identify, pilot, and evaluate business models for not-for-profit organizations to transform fresh produce into value-added products (VAP), partnering with local farmers and community markets toward economic, health, and social benefits for multiple stakeholders.

Study Design, Setting, Participants: The mixed-methods approach included urban community focus groups ($n = 4$), a farmer focus group ($n = 1$), farmer survey ($n = 42$), and farmer interviews ($n = 6$) to inform VAP and business model development. Sensory evaluations with community members ($n = 50$) determined VAP taste and labeling preferences.

Measurable Outcome/Analysis: Qualitative analysis included coding focus group and interview transcripts to determine VAP preferred by consumers, and business models preferred by farmers. Descriptive statistics evaluated quantitative survey data for farmer product availability and business model preferences, and sensory evaluation data for consumer VAP preferences.

Results: Themes influencing consumer VAP choice included quality, health, and seasonality, with interest in tomato and fruit-based products. Farmers indicated tomato and fruit availability, aligning with community needs. A successful “product-share” model pilot distributed VAP among farmers and producers. In sensory evaluations, consumers reported via 7-point hedonic scale liking the taste of tomato sauce ($n = 24$; 5.13 ± 1.73 [SD]), apple sauce ($n = 25$; 6.02 ± 1.14 [SD]), zucchini pickles ($n = 15$; 5.80 ± 1.32 [SD]), and hot pepper relish ($n = 8$; 5.63 ± 1.30 [SD]), and learning the VAP produce source from the food label.

Conclusions: Local consumers, farmers, and producers will collectively determine healthy VAP success. Lessons learned include the importance of engaging diverse stakeholders during product development. VAP can overcome seasonal limitations on local foods, increasing healthy food access with economic opportunity for farmers and producers. Implications include better-informed steps toward a local, nutritious food system, including access to healthy options in urban communities.

Funding: USDA.

P4 Recipe Sampling at Farmers' Market: Implications on Self-Reported Fruit and Vegetable Intake, Dermal Carotenoid Scores, and Intent to Prepare

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Background: Farmers' markets (FM) provide an opportunity for consumers to support local producers and promote fruit and vegetable (FV) intake. Plate It Up! Kentucky Proud (PIUKP) develops healthy recipes incorporating locally-produced specialty crops and educational resources that are then delivered by Extension professionals. In collaboration with local producers, Extension professionals often set up at the FM to provide PIUKP resources and recipe samples. As part of the PIUKP project, evaluation data is collected annually at FM throughout the state.

Objective: To evaluate the relationship between self-reported FV intake and dermal carotenoid scores in adult FM patrons and to assess the impact of PIUKP recipe sampling at the FM on intent to purchase and prepare locally-produced FV.

Study Design, Setting, Participants: Over a period of 3 summers, adult patrons ($n = 751$) at diverse FM's throughout the state were invited to sample a seasonally-appropriate PIUKP recipe and complete a short survey with questions about their typical FV intake, sampling experience, and FM purchasing habits. Dermal carotenoid levels were also evaluated in years 2 and 3 ($n = 525$) through reflection spectroscopy using the Veggie Meter.

Measurable Outcome/Analysis: Descriptive statistics are provided. Correlation analyses were used to evaluate the relationship between self-reported FV intake and dermal carotenoid scores.

Results: The study participants reported consuming an average of 2.22 ± 1.18 servings of fruits and 2.91 ± 1.48 servings of vegetables daily. Mean dermal carotenoid scores were 200.3 ± 87.6 ; a weak ($r = 0.32$) positive correlation was found between self-reported FV intake and dermal carotenoid scores. On a scale of 1 to 10 with 10 being “Contributes a Lot,” participants indicated both recipe sampling (7.83 ± 2.23) and recipe cards (7.76 ± 2.34) contributed to their making a recipe using FV purchased at the FM. The majority (77.6%) of participants indicated they were very likely to purchase the FV highlighted in the sampled recipe.

Conclusions: Self-reported FV intake was weakly correlated with dermal carotenoid scores, indicating further research is needed to evaluate the use of reflection spectroscopy as a marker of FV intake. As well, providing samples of healthy recipes and recipe cards incorporating FV being sold at the FM contributed to the likelihood of purchase and later preparation of the recipe.

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P5 Understanding Farm to Early Care and Education (ECE) Efforts in Colorado

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