

Measuring food purchases, community needs and tribal policy for healthy foods in local grocery stores on and near a Northern Plains Indian reservation

Project Purpose. This project assessed community needs and perceptions of food resources and the food environment in three small grocery stores on and near a Northern Plains Indian reservation in the United States. The project also assessed tribal member ideas for culturally specific and community based strategies for increasing purchases and use of healthier foods in the local grocery stores. Qualitative interviews were conducted with tribal government and health officials to determine the likelihood of adopting a local tribal policy that increases the availability of healthy foods in the local grocery stores and supports consumer demand for these food items. The Year 1 data is helping develop and implement strategies for increasing healthy foods and sales of healthy foods in a small grocery store on the reservation Year 2. All project outcomes were disseminated to the Tribal Health Board and Council December 2007. These data can be used in grants the tribes submit that fund strategies that improve local food environments on the reservation. The project can also inform other reservation communities how to assess, and ultimately improve, their local food environments.

Study Design:

This study used quantitative and qualitative instrument tools for data collection. Data was collected from four main sources - grocery store customer, grocery store managers, tribal government and health board officials and food items in grocery stores on and off reservation. The data was collected over a 10-month period, November 2006 through July 2007. We staggered our data collection to control for seasonal variation of consumer responses and food item fluctuation in the local stores. All surveys, interview questions and food item measurement tools were approved by the University of Montana Institutional Review Board (09/19/07).

Grocery Store Shopper Surveys: The 69-item self-administered grocery store shopper survey was a modified version of the Native Agriculture and Food Systems Food Sovereignty Assessment Tool¹ and a community food resources survey we had previously used on the reservation. We pilot tested the survey for this project in a small sample of Native American adults living on and off reservation and incorporated suggested changes to the survey before we administering it to community members. The survey collected information about community food resources (e.g. what resources would be useful for improving healthy food purchase and consumption in their household), participation in food assistance programs, diet and health and cultural food traditions of the reservation community. Additionally, the survey asked shoppers to describe perceived barriers to the purchase of healthy foods (e.g. customer knowledge, healthier foods need to be priced competitively, etc.), and what strategies (e.g. tribal policy changes, point of purchase information in the store, cooking demonstrations, etc) would help increase purchase and consumption of healthier food items. While we administered 275 surveys, only 216 of these were fully completed; this report summarizes data from the complete surveys only. Grocery store shoppers (n=214) participated in an additional survey that was administered by the on-site project staff (e.g. tribal members). This interview tool asked 29 questions that assessed consumer interest in having different types of foods available at the local grocery stores.

Store Manager Survey: The 37-item interview/survey was a modified version of the Border Health Strategic Initiative store manager survey.² The on-site Project Director conducted interviews with 5 managers from the three stores. The survey questions were divided into five categories in which respondents were asked to 1) describe the types of products purchased within food categories; 2) rate the demand for specific health foods (e.g. skim milk vs. whole milk, sugar-based cereal vs. whole-grain cereals, etc.), 3) compare the demand for less healthy food items with healthier alternatives, 4) describe perceived barriers to the purchase of healthy foods by customers (e.g. customer knowledge, healthier foods need to be priced competitively, etc.), and, 5) describe what types of tribal initiatives (e.g. tribal policy changes) would help increase purchase and consumption of healthier food items.

Tribal Council and Health Board member interviews: We developed a set of interview questions that described the local grocery store food environment from the perspective of Tribal Council and Health Board members. We were interested in these tribal members' perceptions and suggestions of how to increase the amount healthy food items in the stores as well as assessing the feasibility of implementing a local tribal policy that supports the sale and consumption of healthy foods. Eight out of 12 eligible participants took part in the interviews.

Grocery Store Food Items Cost and Availability: We adapted the validated Nutrition Environmental Measures Surveys (NEMS) instrument tool to the local grocery store food items (e.g. local store brand names and product types). The adapted instrument was used to assess the price, availability and quality of food items in stores on and off reservation. The grocery stores we assessed off reservation were ones primarily used by people residing on the reservation.

Results:

A convenience sample of people who shopped at local grocery stores on the reservation completed the self-administered Grocery Store Shopper Survey (n=216) and Interview administered questions (n=214). The surveys were administered at these locations because reservation survey staff suggested it would be a great place to obtain a large number of completed surveys. The main results from this survey are as follows:

Demographic characteristics report the respondents were 96.3% American Indian/Alaskan Native, 2.3% were non-Native/non-Hispanic/White and 1.4% were Latino/Hispanic and other ethnicity. Fifty three percent of the respondents were female and 94% were tribal members. Sixty one percent reported an annual income of less than \$20,000/year; 25% earned \$20,000 to \$40,000/year and 14% earned more than \$40,000/year. Most of the respondents (70%) had a high school diploma or equivalent or some college degree experience.

Food shopping habits: Most of the respondents (73%) owned a car or had access to use a car to go to the grocery store. Seventy eight percent reported their primary food store being 32 miles from the reservation and the main reasons for shopping at this store was convenience (66.4%) compared to food selection (15%) or price (0.5%). The respondents rated the quality, selection and affordability of fresh fruits and vegetables at this store as "good" (57.9, 47.2 and 51.4, respectively) compared to a rating of "poor" (33.2, 47.7, and 42.1, respectively). A rating of "excellent" in all three categories was less than 8%.

Community food resources: The survey assessed the degree of reliance on various community food resources. These resources included community grocery stores, convenience stores, trading post, family garden/farm, farmer’s market, food co-op, community garden/farm, school garden/farm, tribal farm, hunting/gathering, trade/barter, sharing, FDPIR (commodities) program, food stamps and food bank. Of these, grocery stores, food stamps, convenience stores and the FDPIR (Commodity) program scored highest for degree of reliance compared to the other categories (“very important and somewhat important”). Trading/bartering, food coop and school garden/farm scored the lowest for degree of reliance, but this may be because these food resources are almost non-existent in this reservation community. Hunting/gathering scored moderately high for degree of reliance (46.7% having a very important degree of reliance and 34.1% having a somewhat important degree of reliance on this community food resource).

Foods that are difficult to get or are not available on the reservation: fresh fruits, fresh produce and vegetables, lean meats, dairy products, oranges, deer meat, tripe, seasonings, traditional foods, melons, healthy foods.

Tribal government and council as the agencies/individuals identified by survey respondents as most responsible for solving food problems in the community. Other agencies/individuals responsible for food problems included federal or state health agencies, schools and universities and federal or state cooperative extension agencies (see Table 1).

Table 1: Agencies/individuals who solve food problems in the community

| Agencies/Individuals | Prevalence (%) |
|--|-----------------------|
| Tribal government and council | 65.4 |
| Federal or state health agencies/staff | 39.3 |
| Federal or state cooperative extension | 21 |
| Schools and/or Universities | 21 |
| Community or nonprofit groups | 20.1 |
| Volunteers | 18.7 |
| Religious groups | 9.3 |
| Other | 7.0 |

Food assistance programs and reasons for participation or not participating: Respondent participation was highest in the food stamp, national school lunch and WIC programs; 100% reported participating in the TETAP or Emergency Food Assistance program (see Table 2). Some of the main reasons for using the food assistance programs were continued unemployment and unusual expenses during the month; traditional sources of food not available were not typical reason for participating in the food assistance programs. Sixty nine percent reported needing food assistance for 1-2 days each month but did not receive it; reasons reported for this were not thinking they qualified for the program or didn’t have gas money to go get the assistance; 100% reported not receiving the assistance due to family members not wanting them to apply, don’t get along with people that work there, and tribe out of funds when help was needed.

Table 2: Food Assistance Program Participation

| Name of Program | Prevalence (%) |
|---|-----------------------|
| TEFAP (Emergency Food Assistance Program) | 100 |
| Food Stamps | 38.8 |
| National School Lunch Program | 16.4 |
| Women, Infants and Children Program | 15 |
| School Breakfast Program | 11.7 |
| Commodity Food Program (FDPIR) | 10.7 |
| Summer Food Service Food Assistance Program | 5.6 |
| WIC Farmers Market Nutrition Program | 5.6 |
| Meals on Wheels | 1.4 |
| Child and Adult Care Food Program (CACFP) | 0.5 |
| None | 41 |
| Other | 7.8 |

Survey respondents rated resources and strategies for improving healthy food intake on the reservation (Table 3). The highlighted resource and responses are of most interest as we develop and implement the healthy food strategies in the stores, Year 2.

Table 3: Rating Resources for Improving Healthy Food Intake

| Resource | Very useful | Somewhat useful | Not very useful | Not at all useful |
|---|--------------------|------------------------|------------------------|--------------------------|
| Tips on getting the most for my money at the grocery store | 61.7 | 29.9 | 5.6 | 2.3 |
| Information on nutrition and healthful eating and cooking | 55.6 | 34.1 | 7.9 | 2.3 |
| Information about government programs for which I might qualify | 53.7 | 31.3 | 8.4 | 5.6 |
| Help with reading, filling out or understanding forms and applications | 39.3 | 38.3 | 13.1 | 8.9 |
| Help with reading and understanding the Nutrition Facts label on foods | 43.5 | 33.2 | 15 | 7.9 |
| A “one-stop” application process for all food assistance programs | 48.1 | 34.6 | 7.9 | 8.4 |
| Access to transportation | 51.4 | 29.9 | 9.8 | 7.5 |
| Access to child care | 46.7 | 28.5 | 11.7 | 11.2 |
| Help with budgeting | 47.2 | 31.3 | 13.6 | 6.5 |
| Information on how to grow a garden | 38.8 | 35 | 13.6 | 11.2 |
| Information on how to grow traditional foods | 43 | 32.2 | 13.1 | 9.3 |

Table 3: Rating Resources for Improving Healthy Food Intake (continued)

| Resource | Very useful | Somewhat useful | Not very useful | Not at all useful |
|--|--------------------|------------------------|------------------------|--------------------------|
| Recipes and information on using commodities foods | 42.5 | 34.1 | 12.1 | 10.7 |
| Recipes and information for preparing traditional foods | 50 | 33.6 | 8.9 | 7 |
| Information in my native language | 49.1 | 27.1 | 9.3 | 13.6 |
| In-store information about the “healthy” or “unhealthy” foods and ingredients | 54.2 | 33.6 | 6.5 | 4.7 |

Food Preparation equipment and methods: Most (90.2%) of the respondents had a gas or electric stove for food preparation; 84.6% had a microwave, 92.5% had a refrigerator and 74.8% had a freezer. Very few (10.7%) had access to a food dehydrator or ways to dry foods and only 10.3% reported they had food canning equipment.

Culture Assessment – Food Systems: The survey assessed knowledge of traditional farming and hunting, resources for learning how to get and prepare traditional foods, suggestions to get young people interested in food traditions, etc.

Main themes/reasons why young people are not interested in food traditions included:

1. Not taught early enough
2. Kids have lost tradition
3. Knowledge not passed down from elders
4. Too busy with other things
5. Too busy getting drunk & doing drugs
6. Lazy, like junk foods, and just “don’t care”

Main themes/suggestions for ways to get young people interested in food traditions included:

1. Teach youth at an early age
2. Have more school programs
3. Knowledge from elders; Take them hunting, fishing, picking berries
4. Put on workshops – have families involved, have summer culture programs.

Seventy six percent reported that relatives were the primary resource for learning how to obtain and prepare traditional foods compared schools (17%), 4-H club (6.5%) or a dietitian/nutritionist (5.1%). Knowing these reasons inform future strategies that get young people more interested in food traditions on the reservation

The survey contained three open ended questions assessing food and hunger issues in the community and local grocery store environments.

Question: If you could tell your tribal leaders anything about food and hunger issues in your community, what would you tell them?

1. NEED BETTER FOOD VARIETY IN LOCAL STORES

2. NEED A LARGER GROCERY STORE ON RESERVATION (IGA)
3. ESTABLISH A COMMUNITY FOOD BANK
4. NEED LOWER PRICED FOOD
5. GIVE THE POOR MORE HEALTHY FOOD INSTEAD OF COMMODITIES
6. NEED MORE FRESH FRUIT AND VEGETABLES
7. OFFICIALS NEED TO LISTEN TO OUR NEED and THEN DO SOMETHING ABOUT IT

Question: If you could tell your tribal leaders anything about the food that is sold in the local grocery stores what would you tell them?

1. NEED MORE FRESH PRODUCE
2. LOWER PRICES
3. MORE TRADITIONAL FOODS
4. MORE VARIETY
5. SHOULD HAVE "REAL" GROCERY STORES
6. TOO MUCH CANDY AND JUNK FOODS IN STORES
7. NEED BETTER SELECTION AND VARIETY
8. MAKE IT A REQUIREMENT THAT STORES CARRY A CERTAIN PERCENTAGE OF HEALTHY FOODS

Question: If you could tell the federal government anything about food and hunger issues in your community, what would you tell them?

1. NEED MORE HEALTHY AND LESS EXPENSIVE FOODS
2. NEED MORE HELP – PEOPLE ARE HUNGRY,
3. NEED LOCAL FOOD BANK
4. BETTER SELECTION OF COMMODITIES AND WIC ITEMS
5. FUND GROCERY STORES TO SELL MORE HEALTHY FOODS
6. HELP THE PEOPLE IN THE US FIRST
7. COME LIVE HERE FOR A MONTH AND SEE THE SITUATION FIRST HAND
8. OUR PEOPLE ARE STARVING

The main themes and data from the open-ended questions are informing the development and implementation of community based strategies to improve the food environment and resources on the reservation Year 2.

Grocery store shopper interviews (n=214): The interviewer asked grocery store shoppers to identify their purchase/consumption patterns of various food items (Table 4). These outcomes inform the types of foods the Year 2 project will implement in the stores. Seventy seven percent reported wanting shelf labels in the stores that identify healthy food choices and 70% of the respondents were interested in more education about healthy foods in the store.

Table 4: Grocery store shopper consumption patterns – selected items

| Question | Percentage (%) |
|---|-----------------------|
| Type of milk most frequently purchased | |
| 2% | 65.9 |
| Skim/1% | 18.7 |
| Whole | 17.6 |
| Lactose-free/Low-carbohydrate | 0.5 |
| Are you able to get the milk type at this store? | |
| YES | 86 |
| Do you buy fruits and veggies here? | |
| YES | 33.2 |
| Type of hamburger you most often buy | |
| Regular (20% fat) | 43.9 |
| Lean (10% fat) | 33.6 |
| Extra lean | 19.6 |
| Are you able to get this hamburger type at this store? | |
| YES | 42.1 |
| Type of cooking oil you most often buy? | |
| Lard | 4.7 |
| Vegetable oil/Corn oil | 69.2 |
| Olive oil | 10.3 |
| What kind of bread do you most often purchase? | |
| White | 66.8 |
| Wheat | 10.7 |
| 100% Whole Wheat | 13.1 |
| Stone ground or Multi-grain | 2.8 |
| What effect does price have on your food purchases here? | 20.1 |
| None | 38.3 |
| A little | 41.6 |
| A lot | |
| Would you like shelf labels that identify healthy food choices? | |
| YES | 77.1 |
| Should Tribal Council regulate some of the foods sold in the stores? | |
| YES | 49.1 |
| NOT SURE | 26.2 |
| Are you interested in more education about healthy foods? | |
| YES | 70 |

Grocery store shoppers were asked to rank 6 reasons for not eating healthy foods. The reasons, in order of rank were:

- #1 Feel it is too expensive to eat healthy foods
- #2 Lack of time to plan meals, shop and cook
- #3 Lack of education about what is healthy and what is not healthy
- #4 Items not stocked or easily available
- #5 Taste – seems like healthy foods don't taste as good
- #6 Influence of media – TV ads, radio, billboards, store advertising.

Another survey question asked customers to rate the likelihood of purchasing various food items in the coming year (Year 2 implementation phase). The food items that are bolded are the ones they would be very likely, or somewhat likely, to buy and will be some of the food items promoted in the grocery store, Year 2 (Table 4).

Table 4: Likelihood of buying certain food items foods - Grocery Store Shopper

| Food Item | Likelihood (%) | | |
|--|----------------|-----------------|-------------|
| | Not at all | Somewhat likely | Very likely |
| 100% orange juice, grape juice, or apple juice | 7.6 | 30.8 | 61.6 |
| Skim milk/1% milk | 27.5 | 32.1 | 40.4 |
| Low-fat yogurt or sugar-free yogurt | 27.5 | 35.4 | 37.1 |
| Ground Turkey | 46.7 | 30.1 | 23.2 |
| Skinless chicken | 26.8 | 28.5 | 44.7 |
| Buffalo burger | 43 | 27.2 | 29.8 |
| Salmon - fresh or frozen | 45.4 | 25.5 | 29.1 |
| Canned Salmon | 51.3 | 26.8 | 21.9 |
| Deli meats- turkey, ham, roast beef... | 11.3 | 29.8 | 58.9 |
| Other unbreaded fish products (halibut, Pollack, cod..) | 46.7 | 30.1 | 23.2 |
| Whole wheat bread – 100% | 20.5 | 34.1 | 45.4 |
| Brown rice | 36.1 | 36.8 | 27.2 |
| WW tortilla's | 30.8 | 31.8 | 37.4 |
| Whole Wheat Pasta | 38.4 | 31.8 | 29.8 |
| Oatmeal | 26.2 | 30.5 | 43.4 |
| Whole wheat flour | 34.8 | 31.5 | 33.4 |
| High fiber cereals (All Bran, Bran Buds, Shredded Wheat & Bran, Raisin Bran...) | 19.2 | 30.5 | 50 |
| Lean Cuisine or Healthy choice dinners | 26.5 | 37.1 | 36.1 |
| Frozen Berries (black, blue, raspberries) | 13.9 | 29.8 | 55.6 |
| Fresh Fruit | 10.3 | 22.5 | 66.9 |
| Romaine or green leaf lettuce | 14.9 | 30.8 | 54.3 |
| Other fresh vegetables | 10.6 | 30.1 | 59.3 |

Table 4: Likelihood of buying certain food items foods (continued)

| Food Item | Likelihood (%) | | |
|---|----------------|-----------------|-------------|
| | Not at all | Somewhat likely | Very likely |
| Adams or Smart Balance (natural) peanut butters | 33.4 | 39.7 | 26.8 |
| Smart Balance spread | 31.8 | 41.7 | 26.5 |
| Olive oil | 33.8 | 37.7 | 28.5 |
| Baked chips | 18.9 | 40.4 | 40.7 |
| Sugar-free candy | 32.5 | 37.7 | 29.8 |
| Low-fat mayonnaise or Miracle Whip | 21.9 | 45.7 | 32.5 |
| Low-sodium salt/salt sub | 31.8 | 41.7 | 26.5 |
| Low-sodium soy sauce | 33.1 | 39.4 | 27.5 |
| Low-sodium canned veg, soups,or tomato products | 29.8 | 37.4 | 32.8 |
| Equal or Splenda | 38.7 | 28.8 | 32.1 |
| Sugar-free Jello | 34.8 | 33.1 | 31.8 |

Additional questions from grocery shopper interview that helps inform Year 2 implementation phase:

Would you like to have shelf labels, helping you identify healthy or healthier choices?
Yes 78.1% No 17.9%

Do you think that the tribal council could or should regulate some of the foods sold, in order to decrease obesity, diabetes, cardiovascular disease and cancer?
Yes 46.4% No 24.2% Not sure 29.5%

Are you interested in more education about healthy foods? **Yes 70% No 30%**

Results – Grocery Store Manager Interviews, NEMS data and Tribal Council Interviews

Most (80% of the 5 grocery store managers interviewed were between 45-64 years old and all of the managers resided in the community. Eighty percent of the interviewees had been a manger or assistant manger of the grocery store for at least 7 years; 1 had been the store manager for 17 years.

Summary of common themes from the grocery store manager interviews:

Store managers (n=5) report the biggest sellers in the stores are pop, candy, chips, pizza, bottled water, dinner items, ice cream and staples (milk, bread, meat). The best selling type of milk (out of skim, 1%, 2%, whole, lactose free) was 2%; the most popular beverage purchased in the stores (out of soda, 100% juice, juice blends, PowerAde, Gatorade or water) was soda and regular not diet, was the type of soda most often sold in the stores. The most popular meat item sold (out of pork, beef or poultry) was beef; the most popular prepared food purchased (out of deli sandwiches, burritos or hot dogs) were deli sandwiches and burritos; the most popular frozen entrée purchased was pizza and the best selling cooking oil (out of lard, vegetable oil, corn oil, olive oil or corn oil) was vegetable oil and corn oil. The mangers identified selling regular chips

(100%) more than baked chips (0%), although baked chips are not routinely stocked on store shelves. Table 5 reports the percentage of managers answering “Yes” to questions about the availability of various bread and rice varieties in their stores

Table 5: Bread and rice varieties

| Survey Question | YES (%) |
|--|---------|
| Do you carry equal amounts of white & wheat bread? | 20 |
| Do you carry 100% whole wheat bread? | 40 |
| Do you carry brown rice? | 80 |
| Do you carry any non-WIC cereals? | 80 |

Three out of 5 managers reported getting deliveries of fresh fruits and vegetables once a week, 2 out of 5 reported these deliveries happen do not occur on a weekly or monthly basis. Managers reported selling more canned (60%) vegetables and fruit compared to either fresh or frozen. Eighty percent of the managers reported selling foods at suggested retail prices

Similar to the survey question asking grocery store shoppers to rate their likelihood of purchasing certain food items in the store (Table 4), the survey asked grocery store managers to rate the likelihood of customers purchasing certain food items (Table 6). The food items that would have some and/or very much demand will be food items implemented and/or promoted in the grocery store during Year 2 implementation phase.

Table 6: Likelihood of buying certain food items foods – (Grocery Store Manager)

| Food Item | Likelihood (%) | | |
|---|----------------|-------------|------------------|
| | No Demand | Some Demand | Very Much Demand |
| 100% orange juice, grape juice, or apple juice | 0 | 40 | 60 |
| Skim milk | 40 | 60 | 0 |
| 1% milk | 0 | 80 | 0 |
| Low-fat yogurt or sugar-free yogurt | 0 | 60 | 40 |
| Ground Turkey | 100 | 0 | 0 |
| Skinless chicken | 60 | 40 | 0 |
| Buffalo burger | 0 | 20 | 80 |
| Lean Ground beef | 40 | 60 | 0 |
| Salmon - fresh or frozen | 0 | 40 | 60 |
| Canned Salmon | 20 | 60 | 20 |
| Deli meats- turkey, ham, roast beef... | 20 | 60 | 20 |
| Other unbreaded fish products (halibut, Pollack, cod) | 20 | 80 | 0 |
| Whole wheat bread – 100% | 20 | 60 | 20 |
| Brown rice | 20 | 80 | 0 |
| WW tortillas | 60 | 40 | 0 |

Table 6: Likelihood of buying certain food items foods – (Grocery Store Manager)

| Food Item | Likelihood (%) | | |
|---|----------------|-------------|------------------|
| | No Demand | Some Demand | Very Much Demand |
| Whole Wheat Pasta | 60 | 40 | 0 |
| Oatmeal | 20 | 40 | 40 |
| Whole wheat flour | 40 | 40 | 20 |
| High fiber cereals (All Bran, Bran Buds, Shredded Wheat & Bran, Raisin Bran...) | 0 | 80 | 20 |
| Lean Cuisine or Healthy choice dinners | 20 | 60 | 20 |
| Frozen Berries (black, blue, raspberries) | 0 | 80 | 20 |
| Fresh Fruit | 0 | 40 | 60 |
| Romaine or green leaf lettuce | 0 | 60 | 40 |
| Other fresh vegetables | 20 | 40 | 40 |
| Adams or Smart Balance (natural) peanut butters | 80 | 20 | 0 |
| Smart Balance spread | 80 | 20 | 0 |
| Olive oil | 60 | 40 | 0 |
| Baked chips | 20 | 20 | 60 |
| Sugar-free candy | 20 | 80 | 0 |
| Low-fat mayonnaise or Miracle Whip | 40 | 20 | 40 |
| Low-sodium salt/salt sub | 60 | 40 | 0 |
| Low-sodium soy sauce | 60 | 40 | 0 |
| Low-sodium canned veg, soups, tomato products | 40 | 60 | 0 |
| Equal or Splenda | 0 | 40 | 60 |
| Sugar-free Jello | 40 | 40 | 40 |
| Lard | 20 | 60 | 20 |
| Sugar-free candy | 20 | 80 | 0 |

Grocery store managers were asked several open-ended questions about product consumption by “healthy food” status. Some of these questions and responses are reported below.

Question: In the last month, how many requests for healthy items have you received from customers? Responses were: 10, 6, 5, several and 0. Question: In the last year, how many requests for healthy items have you received? Responses were: 20, 20, 10, several and 0. What was the one item requested? Whole wheat bread (n=2), Baked chips (n=2), Yogurt (n=1). Most managers then responded that they did not stock the requested item.

Question: When you stock a new item, how do you advertise the product? Responses were: signs, endcaps, verbally tell customers about product; 2 managers reported not advertising new products in the store.

The managers also thought that holding community workshops on healthy eating would be one way to increase the purchase and intake of healthy foods on the reservation; presenting in store information using end-cap displays and information signs in the store might help increase healthy food intake too.

Grocery Store Food Items Cost and Availability: The NEMS food item data not available for Year 1. NEMS data was inconsistently collected during Year 1 and therefore, not reliable. We will collect NEMS data during Year 2.

Tribal Health Board and Council interviews

Summary of common themes from the Tribal Council and Health Board member interviews:

- Most tribal council and health board members felt it was up to local grocery store managers to decide what to sell in the store although they felt that if this project identifies specific community member needs for specific food items and nutrition education in the store that this information should be presented to the store manager as impetus for offering these healthier food items, and implementing the community identified educational strategies in the store(s).
- Seventy percent of the interviewees supported the tribe endorsing a local policy for purchase and consumption of healthy foods on the reservation.
- Less than half of the interviewees supported eliminating (banning) the sale of all sugared soda and candy in the stores; 100% of the respondents thought the way to go about decreasing sales of these high sugar foods was in providing more nutrition education about the harmful effects of consumption of these products – education that is posted in the stores and presented to the community at health fairs, diabetes clinic, etc.
- Many respondents liked the idea of an incentive program/strategy that increased healthy food purchases at the stores. Most were reluctant that tribal council and health board fund the incentives but thought that using grant funds to cover the incentives was a great idea. Many liked the idea of a punch card incentive, e.g. buy \$10 worth of healthy foods and get a \$10 voucher for healthy foods.
- All interviewees expressed interest in learning about these study results. The on-site project director met with tribal council staff December 2007 and disseminated Year 1 findings. This meeting generated much discussion and identified additional funding streams that might increase the amount of money for implementing the community-based strategies for improving the reservation grocery store environment Year 2.

Benefits and Limitation of Year 1 project

Benefits of the study: One of the main benefits of the study is that community members living on or near a Northern Plains Indian reservation identified strategies that might increase healthy foods in local grocery stores. Thus, the information obtained in this study is based on local feedback and not outsiders suggestions – this approach increases the likelihood that community members will be more interested in the healthy foods information and feel some sense of ownership of the strategies that will be implemented in local stores. We hope this community ownership and involvement in this project will increase the chances they will purchase and consume more healthy foods. Based on community-based survey data some of these strategies might include providing information on nutrition and healthful eating and cooking at the store, tips on getting the most for one's money at the local grocery store, or providing tribal vouchers and/or community incentives for trying new healthy foods. A long term goal of the project is to

implement these strategies in subsequent years, and translate these findings to other American Indian reservations interested in improving local food environments, specifically, reservation grocery store environments.

Limitations of the study: First, the participants in this study were not randomly selected, so these data may not be representative of the general Northern Plains American Indian population on this reservation. Second, the data on food quality, selection and affordability based on self report are subject to variation in individual's perceptions of these factors. The small sample size of this study limits the generalizability of outcomes to American Indian reservation communities, but these findings provide useful data for future interventions and strategies that improve the food environment and food resources on this reservation.

Literature Cited

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