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FOOD ABUNDANCE INDEX™



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EXECUTIVE SUMMARY

While awareness of the increase in the number of communities that are impacted by low food security has increased, existing tools to detect the presence of food deserts and measure level of food security have numerous limitations and drawbacks. The Food Abundance Tool © fills this gap because:

- Most tools and measures do not consider all the dimensions of food security related to access, diversity, quality, density and affordability.
- Previous measures can detect whether a food desert exists, but they cannot integrate across different levels since they cannot be used to identify where gaps or problems exist that may cause a breakdown in food security.
- Tools to measure or track levels of food security are extremely complicated, expensive and not readily available to local communities.
- Existing tools and measures provide only a one-time snap shot of the extent of food security in a community and cannot be used to track improvement in levels of food security or effectiveness of strategies implemented by communities.

The David Berg Center for Ethics and Leadership at the University of Pittsburgh's School of Business in partnership with the Pennsylvania Association for Sustainable Agriculture (PASA) undertook a project to develop and validate a new scorecard to measure food security called the "Food Abundance Index." The Index has been developed to measure the level of 'food security' and determine whether a 'food desert' may exist within a specific community or neighborhood area i.e., to determine the amount of access and availability of healthy, nutritious and culturally appropriate food within a special neighborhood or area. The Food Abundance Index © (or FAI) attempts to combine the strengths of existing measures of food access and availability and examines food security based on a five dimension criteria of access, diversity, quality, density and affordability.

This report outlines the creation, use and impact of the FAI tool along with its potential contributions and benefits. A detailed technical report and user's toolkit is available from the David Berg Center for Ethics and Leadership. The goals of this report are to provide an overview to the FAI scorecard and to help individuals, communities and regions:

- Lay the foundation for reducing communities' food insecurities and improving economic status, health, and overall well-being.
- Feel empowered through direct participation in the evaluation process, motivate community members to participate in shaping the local food system and seek solutions to increase food sovereignty through local resources/channels.
- Undertake sustainable policies and market-based enterprises that allow equitable food access and improve food distribution and access within the communities that have been designated as a food desert.
- Use food as an economic driver to implement workforce development and entrepreneurial opportunities for residents.
- Strengthen the relationship between producers and consumers and provide a catalyst for local economic development by putting into practice policies and business models that provide quality, locally grown produce to communities designated as a 'food desert'.

THE FOOD ABUNDANCE INDEX™

While awareness of the increase in the number of communities that are impacted by low food security has increased, existing tools to detect presence of food deserts and measure level of food security have numerous limitations and drawbacks. These limitations include:

- Most tools and measures do not consider all the dimensions of food security related to access, diversity, quality, density and affordability.
- While these measures can detect whether a food desert exists, they cannot integrate across different levels since they cannot be used to identify where gaps or problems exist that may cause a breakdown in food security.
- Tools to measure or track levels of food security are extremely complicated, expensive and not readily available to local communities.
- Existing tools and measures provide a onetime snap shot of the extent of food security in a community and cannot be used to track improvement in levels of food security or effectiveness of strategies implemented by communities.

The FAI uses a scorecard approach that is similar to other methods such as the LEED Certification (Leadership in Energy and Environmental Design) for communities. The FAI methodology awards points for actions across five dimensions that enhance a community's level of food security: access, diversity, quality, density and affordability. The scorecard approach allows individuals, communities and organizations to measure for levels of food security present in a geographic region and track changes or progress across multiple dimensions. Using a point-based system, the FAI allocates credit (points) across three levels: required, suggested and innovative. A maximum of six (6) points is possible in each of the five dimensions, leading to a possible perfect score of 30 points. Based on this assessment and scoring, each neighborhood or geographic area is then given a total score that corresponds to one of four FAI assessment levels: Food Desert, Food Gap, Food Cluster or Food Bounty.

FAI CRITERIA AND SCORING

The FAI assesses level of required, suggested and innovative elements across five key dimensions that have been shown to measure level of food security within a neighborhood or geographic region.

Access

The first dimension of the Food Abundance Index is access. Access is defined as the availability and ease of contact to healthy, nutritious and balanced food sources.

Required Level: Presence of at least one (1) mainstream grocery store within designated area/community that is accessible by public transportation. When evaluating for the required level of access, the presence of a mainstream grocery store is taken into consideration. A mainstream grocery store is defined as a place that provides a constant and reliable source for a wide range of foods including fresh produce, meat/poultry and dairy items. These include warehouse stores, traditional supermarkets, supercenters and grocery stores (large and small).

But the mere presence of such food sources in itself is not enough, if people do not have direct physical access to grocery stores. For the required level of access, mainstream grocery stores within a ten to fifteen minute bus ride within designated community are classified as accessible.

Suggested Level: Presence of at least one (1) farmers market, organic or local food source outlet. When evaluating whether a community meets the suggested level of access, points are awarded for the presence of farmers markets, organic food outlets and local food source outlets like community supported agriculture (CSA), food cooperatives, farm stands, pick your own operations, etc. Locally grown foods for the purpose of this study will be those products grown/produced within a one hundred (100) mile radius of the neighborhood or community being evaluated.

Innovative Level: Presence of community-based educational support for food nutrition, preparation and usage. The extent of food and nutritional knowledge of the consumer may often present barriers to the choosing and consumption of healthy foods. The process to determine a consumers level of nutritional and food preparation knowledge can be extremely complex and time consuming. To receive points at the innovative level, a neighborhood or area must have resources that provide basic nutrition, food safety and preservation information. This includes relevant educational support and programs that provide assistance or informational access within the community.

Diversity

Diversity refers to the presence and availability of different types of foods based on USDA criterion for nutrition and cultural needs within the community. This analyzes availability of multiple food sources and the type of products that are offered within community. Restaurants, fast food and specialty food sources are excluded because they do not sell primarily fresh produce and products with minimal processing from the field to the fridge.

Required Level: Presence of more than one (1) food outlet available within the community. The required level of diversity analyzes the availability of multiple food sources like mainstream grocery stores, organic and local food source outlets within the study area. This is important to look at because areas with high food insecurity usually lack healthy food sources like supermarkets, natural food stores and specialty food stores that are considered important food destinations for one's daily nutritional needs (i.e., fresh produce, meat and dairy).

Suggested Level: Availability of at least three (3) items of each food group from the USDA Thrifty Food Plan List. The suggested level on the scorecard examines the presence of a diversity of healthy and nutritious food within each food group from the USDA Thrifty Food Plan (see toolkit for a more detailed explanation). The six food groups included in the food plan to supply a minimally adequate and nutritious diet are: fruits, vegetables, grains, dairy products, meat and beans and fats and oils/sugar and sweets. The six food groups contain a total of 68 food items - the suggested level examines the availability of at least three (3) items of each food group from the USDA Thrifty Food Plan within the neighborhood or area.

Innovative Level: Availability of at least one (1) organic or local food source item of each food group from the USDA Thrifty Food Plan List. The innovative level on the scorecard examines

the availability of at least one (1) fruit, vegetable, grain, dairy product, meat/bean and fat and oil/sugar and sweet from the USDA Thrifty Food Plan that is organic or locally grown. This is important because it measures the availability of a variety of foods required to supply a minimally adequate diet.

Quality

Quality refers to the presence and availability of appropriately prepared, transported and preserved food that meets dietary needs of the relevant community. A neighborhood without adequate food quality gives its residents no opportunity to consume appropriately prepared food that meets their dietary needs. Instead, residents have to rely on fast food sources or convenience stores, or must travel outside of their neighborhood to achieve quality food for their family.

Required Level: Presence of at least one (1) food outlet with fresh and unexpired edible foods. The quality dimension determines whether fresh edible foods are present and no out-of-date or expired products are being sold in the area. Food outlets like grocery stores, supermarkets, etc. that provide reliable access to fresh produce, meat/poultry and dairy items should be examined for the sale or presence of unexpired and fresh edible food items from the USDA Thrifty Food Plan List.

Suggested Level: Presence of at least one (1) food outlet with two healthy dietary intake promotion indicators. The suggested level on the quality dimension examines the presence of at least one (1) food store in community or study area that has healthy dietary intake promotion displays within the store. This may include signage promoting low calorie foods, promotions for organic or locally grown fruits and vegetables, or labels near the food displays giving nutritional content of the food item and information on the food guide pyramid including tips for proper food storage and preservation.

Innovative Level: A rating of 'satisfactory' or better on new or existing food quality data/reports/surveys. The innovative level on the scorecard examines existing consumer data and reviews on food quality from agencies like the health department or Better Business Bureau reports including online consumer review websites to determine the quality of food available within the community under study. In the absence of any consumer data on food quality, communities can access existing tools to conduct their own focus groups with residents/consumers on the quality of food available within their area.

Density

This refers to the concentration or proportion of healthy/nutritious food sources to non-nutritious food sources available within the geographic region. Food insecure communities have an imbalance between unhealthy and healthy food destinations and as a result are more vulnerable to economic, social and physical consequences of living in areas with a dearth of outlets that sell nutritious foods.

Required Level: Ratio of one (1) or less of convenience store by grocery store options. The required level focuses on the imbalance of food choices in communities where residents have a higher concentration of venues that sell highly processed foods and foods that are high in salt, fat

and sugar. This level is achieved if the ratios are at least balanced or equal to one (1).

Suggested Level: Ratio of one (1) or less of fast food + convenience stores by grocery stores + produce vendors. An ideal retail food environment should have a greater number of food outlets like grocery stores and produce vendors that provide a constant and reliable source for fresh produce, meat/poultry and dairy items as compared to convenience and fast food stores. A balanced level on this ratio is needed to achieve the suggested level on the density dimension.

Innovative Level: Ratio of one (1) or less of fast food + convenience stores by organic + local food source outlets. A food secure community with a healthy food system will find ways to increase people's access to organic and local foods through a plethora of organic and local food sources outlets like farmers markets, community supported agriculture, farm stands, etc.



Affordability

Affordability refers to the concentration and availability of healthy and nutritious food sources given the income and purchasing power of residents within the relevant geographic location. Levels of affordability are important to examine as they impact key issues such as economic conditions within a community.

Required Level: Availability of USDA's Thrifty Food Plan market basket at costs equivalent to or less than the calculated weekly average cost. Affordability can be examined by the availability of healthy and nutritious foods at costs less than or equal to the national average cost of purchasing a standard basket of food items (see toolkit for food item list). Affordability can then be determined by comparing the cost of purchasing the market basket within the study area to the national average cost of purchasing the Thrifty Food Plan market basket as provided by USDA.

Suggested Level: Presence of community-owned food outlet that provides affordable food access. Affordability is extremely important when assessing the types of foods residents are able to purchase. At the suggested level, communities can put into place programs that make it possible for low-income residents to purchase foods including organic foods at prices they can afford. This level on the scorecard examines the presence of community owned food sources like food cooperatives and food buying clubs that provide affordable access to food for residents within the community.

Innovative Level: Presence of community-based growing options. The innovative level is obtained with the presence of community-based growing options like community gardens, urban agriculture and greenhouse projects and farms. These options could include providing access to fresh produce and other nutritious foods to community residents in exchange for volunteering on the garden/farm or through public pick options within a specific area or neighborhood.

FOOD ABUNDANCE INDEX™

Dimension and Measurement Criteria	Level	Points
ACCESS (6 Possible Points)		
A. Presence of at least one (1) mainstream grocery store within designated area/community that is accessible by public transportation.	Required	-1 or +1
B. Presence of at least one (1) farmers market, organic or local food source outlet.	Suggested	0 or 2
C. Presence of community-based educational support for food nutrition, preparation and usage.	Innovative	0 or 3
DIVERSITY (6 Possible Points)		
A. Presence of more than one (1) food outlet available within the community.	Required	-1 or +1
B. Availability of at least three (3) items of each food group from the USDA Thrifty Food Plan List.	Suggested	0 or 2
C. Availability of at least one (1) organic or local food source item of each food group from the USDA Thrifty Food Plan List.	Innovative	0 or 3
QUALITY (6 Possible Points)		
A. Presence of at least one (1) food outlet with fresh and unexpired edible foods.	Required	-1 or +1
B. Presence of at least one (1) food outlet with two healthy dietary intake promotion indicators.	Suggested	0 or 2
C. A rating of 'satisfactory' or better on new or existing food quality data/reports/surveys.	Innovative	0 or 3
DENSITY (6 Possible Points)		
A. Ratio of one (1) or less of convenience store by grocery store options.	Required	-1 or +1
B. Ratio of one (1) or less of fast food + convenience stores by grocery stores + produce vendors.	Suggested	0 or 2
C. Ratio of one (1) or less of fast food + convenience stores by organic + local food source outlets.	Innovative	0 or 3
AFFORDABILITY (6 Possible Points)		
A. Availability of USDA's Thrifty Food Plan market basket at costs equivalent to or less than the calculated weekly average cost.	Required	-1 or +1
B. Presence of community-owned food outlet that provides affordable food access.	Suggested	0 or 2
C. Presence of community-based growing options.	Innovative	0 or 3
FAI TOTAL = 30 POSSIBLE POINTS (RANGE -5 TO +30)		

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FAI ASSESSMENT LEVELS

After each dimension has been assessed using the scorecard, the overall score can then be calculated. Each neighborhood's Food Abundance Index can be assigned one of four possible evaluation or assessment levels.

They are:

Assessment Level	Descriptive Label	Points Scoring Range
Food Desert	Grey Level	-5 to 15 points
Food Gap	Yellow Level	16 to 21 points
Food Cluster	Green Level	22 to 27 points
Food Bounty	Gold Level	28 to 30 points

Assessment Level

- ✓ A **Food Desert** is the lowest and most severe level of food insecurity. It is characterized by a severe lack of access to fresh healthy foods and diversity among food outlets and items, extremely poor quality food, a higher concentration of unhealthy food destinations and an absence of affordable foods within the community. Areas designated a food desert should receive high priority attention to reduce long-term negative impact.
- ✓ A **Food Gap** is at risk for becoming a food desert. Areas or communities at this level may have minimal amounts of access, diversity, quality, density and affordability but are still providing insufficient amounts for long-term positive outcomes. The food gap is an early warning sign that unless interventions are put into place, the community could very easily slip towards being a food desert. Food security at this level is still at great risk.
- ✓ A **Food Cluster** depicts elevated levels in some of the key dimensions with higher scores in each category. Areas designated at this level have typically achieved at least the minimal on each of the five dimensions. However limited attention to enhancement across the food security dimensions are present at the food cluster level. Thus, there are opportunities for innovation at this level.
- ✓ A **Food Bounty** entails a strong supply of nutrient rich food sources within a local community. Thus, residents are provided with adequate resources in regards to access, diversity, quality, density and affordability of the food available in their community. This level also includes innovative approaches to maintain food security within these communities.

WHY USE THE FAI?

The Food Abundance Index™ has been designed to address some of the limitations and drawbacks of existing tools and measures of food deserts and food security. The design and potential use of the FAI has a number of advantages. The FAI provides:

- A clear and accessible way of evaluating food security within specific boundaries that can determine potential deficiencies that communities need to address.
- A tool that has been designed for easy use by the community, non-profit organizations or other stakeholder groups (especially those with limited financial resources) to identify shortcoming in the local food system, including food access and availability.
- A tool that has been designed to measure levels of food security present in a geographic region and also identify where problems or gaps may exist that may put a community at risk for developing a food desert.
- A 'scorecard' to measure different levels of food security that can identify areas for improvement over time as a result of strategy and policy interventions implemented by communities, business leaders or local governments.

A comprehensive technical report as well as toolkit and users' guide is available. Contact us at:

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