

**How Local Can We Go? The Feasibility for UNCA's Future Wellness Café to  
Incorporate Local Produce**

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## **Abstract**

In Spring 2011 the University of North Carolina at Asheville will open a new Wellness Café. The question students, faculty, and Dining Services faces is ‘how local can we go’ in incorporating local food into the new Café. This research identifies why local food is being demanded. The specific amount of produce required for the Wellness Café is determined and compared to the amount of produce supplied within a 150-mile radius of campus. By comparing the overall supply and demand the research demonstrates the feasibility of incorporating local produce in the Wellness Café. The research examines the potential environmental and economic impacts that local food purchases could have on the region. Upon identifying other barriers to access, suggestions are made for future research.

## **I. Introduction**

The term ‘local’ is a popular advertising mechanism, but it is more than a simple marketing tool. Purchasing local, specifically when it deals with agriculture, can have environmental, economic, and social impacts, both positive and negative. The University of North Carolina Asheville (UNCA) claims in its Strategic Plan that the University “respond[s] to the conditions and concerns of the contemporary world both as individuals and as a university. [They] incorporate economic, social and environmental sustainability into [their] institutional practices and curriculum.”<sup>1</sup> If the Strategic Plan is to hold true, it is vital that the University consider the impacts of its food purchases, not only because UNCA buys large quantities of food, but because of the economic, social, and environmental impacts food purchases have on the region. This research provides insight into the supply of local food available to the new Wellness Café that will open in 2011.

According to UNCA’s Dining Services, depending on the season, 20% of the budget spent on food in the Dining Hall is already being spent on food from sources

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<sup>1</sup> UNC Asheville – Strategic Plan. UNC Asheville -- North Carolina's Public Liberal Arts University. Web. 20 Oct. 2010. < <http://www2.unca.edu/sp/> >.

within 150 miles of campus.<sup>2</sup> Chartwells will run the Wellness Café, which will be a part of UNCA's new \$42 million North Carolina Center for Health and Wellness. Since the Wellness Café has yet to open there are more opportunities for menu planning and food sourcing.

UNCA, like all universities, has challenges regarding food purchases. As a public University in the heart of Asheville, UNCA has a responsibility to support the local community, environmental quality, and to help maintain WNC's heritage—all of which can be accomplished through local food purchases. The student body and faculty also express a strong interest in incorporating local food. They understand it is fresher, healthier, more environmentally friendly, and supportive of local farmers. For example, when polled, 66.9% of students who are currently on a meal plan are interested in increasing the amount of locally grown or produced foods served on campus.<sup>3</sup>

UNCA's Dining Services is being asked to incorporate more local food by the campus community and this research contributes to the ongoing conversation of appropriate and responsible food purchases. UNCA must achieve the proper balance of local food purchases, so as not to reduce others' access to local food. It is the goal of this research paper to determine what percentage of the supply of local produce the Wellness Café will demand, and how that will impact the region, and determine what other potential supply barriers exist.

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<sup>2</sup> Fearn, Alison. "Senior Research: Local Food in the Café." Message to Director of Dining Services. 24 Sep. 2010. E-mail.

<sup>3</sup>Combs, Monica, Karin Peterson, and Amy Lanou. *Food Environment Student Survey*. Asheville, NC: University of North Carolina Asheville, May 2010. Unpublished Survey.

## II. Wellness Café

Currently, UNCA has one major Dining Hall, a food court in Highsmith Union, and the Ramsey Library Café. All dining on campus is operated by Chartwells, a contract foodservice provider. Chartwells “[has] implemented sustainable programs and practices on [their] campuses that help protect the environment, reduce waste, decrease [their] carbon footprint and support local communities.”<sup>4</sup> Alison Fearn, the current Director of Dining Services, explains that Chartwells’ goal for the Wellness Café is the same as their current practices in the Dining Hall to spend 20% of the budget on food from local sources—defining local as within a 150-mile radius or less. Currently, Fearn explains, the dining hall is “up to 30% [local], but once December hits this will drop to 15% given last year’s trends and product availability. Additionally, if we have another bad winter with lots of snow this could drop to 10%.”<sup>5</sup> As Fearn suggests, seasonality is an issue for Dining Services, with the amount of food available locally varying greatly throughout the year. Unfortunately, the school calendar does not correspond with the best times of year to purchase local food. Fortunately, the *Healthy Food Environment Guidelines for University of North Carolina at Asheville* document, written by students from Dr. Amy Lanou’s **Food Politics and Nutrition Policy** class (HWP 333), considered seasonality and created four menus for the Wellness Café corresponding with each season. The suggested menus, located in Appendix A, serve as the baseline for the demand of the Wellness Café. Although the menus identify the season for each item, the data obtained from the USDA does not identify availability by season.

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<sup>4</sup> Home page. Chartwells USA. 25 Oct. 2010.

<[http://www.chartwellshighereducation.com/Live\\_Enhance\\_the\\_Quality\\_of\\_Life\\_CHE.cfm](http://www.chartwellshighereducation.com/Live_Enhance_the_Quality_of_Life_CHE.cfm)>

<sup>5</sup>Fearn, Alison. “Senior Research: Local Food in the Café.” Message to Director of Dining Services. 24 Sep. 2010. E-mail.

### **III. The Campus Community**

Currently, dining services across the country are concerned with the “cost of food and stability of the food supply” but more and more students, faculty, and staff are noticeably concerned with other variables such as “ecosystem health, food safety, human-health benefits, security of the overall system, social justice for workers, and of course, taste.”<sup>6</sup> Like the national trends, the student body at UNCA demands a transformation and change in the current dining facilities. There have been rallies on campus about workers rights at Smithfield’s meat processing facilities, and student research has contributed to increasing local food in the Dining Hall. Students’ involvement in the food movement demonstrates an awareness and desire for Dining Services to pay more attention to their food sourcing. The Student Environmental Center has a Sustainable Food and Landscape Coordinator, working with students in on campus food production, as well as increasing sustainable foods on campus. The campus hosts the Organic Growers School and recently had a Fresh Food Film Festival. Obviously there is a demand by students to be more local and in order for Chartwells to maintain their contract they must listen.

### **IV. Previous Research**

Although local food is a hot topic in the national news, there is not an abundant amount of scholarly research available on the issue of local food distribution on college campuses. There are three major documents that pertain closely to the issue of local food

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<sup>6</sup> Newman, L. & Dale, A. “Large footprints in a small world: toward a macroeconomics of scale.” *Sustainability: Science, Practice, & Policy* 5.1 (2009): 9-19. Web. 22 Sep. 2010.

at UNCA, as well as several documents that contribute to the methodology and understanding of farm-to-school programs.

Appalachian Sustainable Agriculture Project (ASAP) is a non-profit organization that conducts research on local food in Western North Carolina, and is currently working with Alison Fearn to increase the amount of local food available on campus. They conducted a *Western North Carolina Farm-to-School Survey*, which provides an overview of how much universities in the region are incorporating local food, as well as what is prohibiting universities from increasing local food purchases. They found that of the 15 universities in the region, three currently are involved in a farm-to-college program.<sup>7</sup> ASAP has also published a document titled, *Growing Local: Expanding the Western North Carolina Food and Farm Economy*, which identifies the specific challenges of incorporating local food into institutions, as well as discusses the issues of supply and demand to Western North Carolina.

The *Healthy Food Environment Guidelines for University of North Carolina at Asheville*, written by students, provides information on what students' want and ideas on ways to increase local food on campus. The *Guidelines* serve as the basis for determining the demand of local produce in the Wellness Café by providing sample menus. In addition to the *Guidelines* created by students, Alanna Panucci's ECON 480 research titled, "Additional Outcomes for an Additional Price: A Cost-effectiveness Analysis of Purchasing Local Food for the Wellness Café" focused specifically on the Wellness Café. Panucci's research, like this research sought to find the feasibility of increasing local food purchases in the Wellness Café. She did a cost-effectiveness analysis to

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<sup>7</sup> Kirby, Laura D. Results from a Western North Carolina Farm-to-College Survey. Asheville, NC: Phone interviews, Appalachian Sustainable Agriculture Project, 2004-2006. Web. 20 Sep 2010 <<http://www.asapconnections.org/research.html>>

determine the answer to this question. Her research focused on ‘feasibility’ from a cost perspective, whereas this research focuses more on issues concerning supply and demand.<sup>8</sup> Her paper provides background information on the Wellness Café and is an additional prospective that helps answer the overall question of ‘how local can we go’ in the Wellness Café.

Peters, Bills, Wilkins, and Fick explain that the concept of a foodshed is multidimensional, it is a “tool for understanding the flow of food in the food system” as well as, describing “the components of an alternative food system that connects local producers and consumers.”<sup>9</sup> Peters has written extensively on analyzing foodsheds. In his co-authored studies, he maps the potential foodshed in New York State and explains the importance of a localized food system. Peters identified 42 different dietary patterns in New York State. He used per capita land resource requirements to calculate the number of people that could be fed from New York State’s agricultural land, “based on the quality and quantity of land available.”<sup>10</sup> Similar to Peter’s research, this research compares supply and demand of a specific region from a land resource perspective, and identify the importance and feasibility of a ‘local foodshed’.

Tuck, Haynes, King, and Pesch at The University of Minnesota Extension Center, conducted an economic impact analysis of farm-to-school lunch programs in central Minnesota. The study, entitled “The Economic Impact of Farm-to-School Lunch Programs: A Central Minnesota Example” explains that advocates of local food in

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<sup>8</sup>Panucci, Alana. “Additional Outcomes for an Additional Price: A Cost-effectiveness Analysis of Purchasing Local Food for the Wellness Café.” UNCA Senior Research in Economics. 24 April 2010. E-mail.

<sup>9</sup> Peters, Christian J., Nelson L. Bills, Jennifer L. Wilkins, and Gary W. Fick. “Foodshed Analysis and its Relevance to Sustainability.” *Renewable Agriculture and Food Systems*. (2009): Web. Aug 5 2010.

<sup>10</sup> Peters, Christian J., Jennifer L. Wilkins, and Gary W. Fick. “Testing a complete diet model for estimating the land resource requirements of food consumption and agricultural carrying capacity: The New York State example.” *Renewable Agriculture and Food Systems* 22.2 (2009): 145-153. Web. 5 Aug 2010

schools often promote the benefits of local food as increasing healthy lifestyles and having a positive economic impact on the local community. The report is designed to answer the question “what is the potential economic impact of farm-to-school programs in Central Minnesota?”<sup>11</sup> Their research identified three pricing scenarios: farmers receiving the same price as they currently do, farmers receiving a halfway price between what schools currently pay and the current price the farmer sells their product, and a school price scenario where farmers would receive the same price that schools currently pay. They also examine a special meal program, where a school would prepare one meal a month that would include local food. The study determined that, under the “school price [scenario], for example, the Central Minnesota economy would grow by \$158,124 just due to the shift in food sources.”<sup>12</sup> They conclude that no matter which program, all would have a positive economic impact on Central Minnesota’s economy.

The demand from students for farm-to-college programs is increasing steadily, and several local food programs have been created at universities across the country. The University of Wisconsin- Madison found that each “local meal served at UW-Madison generated \$2,000 to \$6,000 in local sales.”<sup>13</sup> UNC-Chapel Hill and Warren Wilson College have both established strong examples of successful local food programs. 347 colleges and universities, including UNCA have signed up to participate in the Real Food Challenge, which sets a goal of having 20% of all food consumed on campus be ‘real’ by

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<sup>11</sup> Tuck, Brigid, Monica Haynes, Robert King and Ryan Pesch. “The Economic Impact of Farm-to-School Lunch Programs: A Central Minnesota Example.” *Economic Impact Analysis*. University of Minnesota Extension, June 2010. Web. 22 Sep. 2010.

<sup>12</sup> Ibid.

<sup>13</sup> *Dishing up local food on Wisconsin campuses*. UW-Madison. Center for Integrated Agricultural Systems, Jan 2001. Web. 1 Nov 2010. <<http://www.cias.wisc.edu/farm-to-fork/dishing-up-local-food-on-wisconsin-campuses/>>

2020.<sup>1415</sup> Colleges across the country are creating a forum on how to create successful local food programs. This ongoing conversation helps facilitate further discussion on increasing the amount of local food available on college campuses. Universities with established farm-to-college programs can act as a model for UNCA.

## **V. Methodology**

It is the goal of this research to compare the supply of produce grown locally, which Dining Services defines as within 150-miles of UNCA, to the demand that the Wellness Café will have for such produce. In order to identify which counties this 150-mile radius includes, names of specific counties in each of the five states: Georgia, North Carolina, Virginia, Tennessee, and South Carolina, were typed into Google Maps. If the distance from Asheville, NC to the county was within 150-miles, the county was included. There are a total of 100 counties within this range: 8 in Virginia, 16 in South Carolina, 39 in North Carolina, 17 in Georgia, and 20 in Tennessee. Appendix C lists each county within the range. Data for the number of acres harvested in each county was collected from the United States Department of Agriculture 2007 Census of Agriculture. An example of the data retrieved from the Census of Agriculture can be seen in Table 1.

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<sup>14</sup> *What is "Real Food"?*. Real Food Challenge. Web. 20 Sep 2010.  
<<http://db.realfoodchallenge.org/schools/>>

The Real Food Challenge defines 'real' to be food that nourishes producers, consumers, communities and the earth.

**Table 1: 2007 Census of Agriculture Data**

<b>Vegetables, Potatoes, and Melons Harvested for Sale: 2007 and 2002</b>						
Geographic Area	2007					
	Harvested		Harvested for processing		Harvested for fresh market	
	Farms	Acres	Farms	Acres	Farms	Acres
<b>CUCUMBERS AND PICKLES</b>						
<u>Counties</u>						
Buncombe.....	35	14	4	(Z)	31	14
Burke.....	10	2	2	(D)	8	(D)
Cabarrus.....	10	2	-	-	10	2
Caldwell.....	7	6	-	-	7	6
Catawba.....	6	2	1	(D)	5	(D)
Cherokee.....	7	6	-	-	7	6

**Source: United States. Dept. of Agriculture. *The 2007 Census of Agriculture*. Natl. Agricultural Statistics Service, 4 Feb 2009.**

As shown in Table 1, several counties have the annotation (D), or (Z) instead of the total number of acres. A (D) is shown to avoid disclosing data from individual farmers and a (Z) suggests that less than half of the data is shown. These annotations make it difficult to know the total number of acres of a specific crop. In addition, because the USDA does not go into great detail for several crops, i.e. potatoes, the quantity of each potato variety grown in the region is unclear. However, the USDA census information does provide an overview of the quantity of vegetables grown in each county.<sup>16</sup>

In order to compare supply and demand, the number of acres harvested needed to be converted into an approximation of the quantity produced per county. Louisiana State University’s Agriculture Center estimated expected garden yields based on historic yield data from Louisiana and the Deep South for crop yields per 100-foot row.<sup>17</sup> According to

<sup>16</sup> United States. Dept. of Agriculture. *The 2007 Census of Agriculture*. Natl. Agricultural Statistics Service, 4 Feb 2009. Web. 5 May 2010.

<sup>17</sup> *Expected Vegetable Garden Yields*. LSU AgCenter. 26 Aug 2009. Web. 16 Oct 2010. <[http://www.lsuagcenter.com/en/lawn\\_garden/home\\_gardening/vegetables/Expected+Vegetable+Garden+Yields.htm](http://www.lsuagcenter.com/en/lawn_garden/home_gardening/vegetables/Expected+Vegetable+Garden+Yields.htm)>

the Ag Center, one can expect to have 130 rows per acre, thus one can convert the number of acres into a quantity by multiplying the number of acres by 130 and then by the expected yield per row, to determine, in most cases, a total weight of each item per county.<sup>18</sup> This is an approximation since yield varies by soil, seed type, weather and other factors. The results of these calculations are located in Appendix D.

Upon collecting the county data, and transforming acres into quantity supplied, it was necessary to determine how much the Wellness Café will demand of each crop.<sup>19</sup> The Director of Dining Services hopes that the new Wellness Café will serve between 250 to 300 people daily.<sup>20</sup> The *Healthy Food Environment Guidelines for University of North Carolina at Asheville's* sample seasonal menu and sample recipes have an approximate number of servings and they suggest the quantity of each item needed. The recipes call for a specific number of each item, rather than a specific weight, thus it is necessary to determine the approximate weight per item in each recipe. The ingredients list and serving size from the sample recipes are located in Appendix B. The weight was determined by *Self Nutrition Data*, an online resource.<sup>21</sup> There are four different menu suggestions, one for each season. In terms of days, the research considered each season to consist of 3 months, 23 days a month.<sup>22</sup> Table 2 lists the produce items that were taken from the menu.

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<sup>18</sup> Supply Equation: (yield in lbs./row)(130 rows/acre)(# of acres) = Total Pounds

<sup>19</sup> Demand Equation: (275 servings/day)(# of days/year)(amt. in lbs.) = Total Demanded (in lbs./year) number of servings as listed in the recipe, # of days determined by the number of seasons served multiplied by 23, and the amount in pounds determined from *Nutrition Facts*

<sup>20</sup> Fearn, Alison. "Senior Research: Local Food in the Café." Message to Director of Dining Services. 24 Sep. 2010. E-mail.

<sup>21</sup> *Nutrition Facts*. Self Nutrition Data: Know What You Eat. Web. 20 Oct. 2010.  
<http://nutritiondata.self.com/facts/vegetables-and-vegetable-products/2536/2>

<sup>22</sup> The number of days was determined to be 23, as an attempt to consider the decreased consumption during the weekend, as well as the fact that various breaks will take place in which the overall number of people eating at the Café will greatly decrease.

**Table 2: Produce Examined**

Apples	Peas, Chinese (Sugar and Snow)
Bean, Snap	Peas, Green (Excluding Southern)
Beets	Peas, Green Southern, Blackeyed, Crowder, Etc.
Broccoli	Peppers Other Than Bell (Including Chile)
Cabbage, Head	Peppers, Bell (Excluding Pimientos)
Carrots	Potatoes
Celery	Potatoes, Sweet
Cucumbers and Pickles	Pumpkin
Garlic	Spinach
Grapes	Squash, Winter
Kale	Sweet Corn
Lettuce, All	Tomatoes in the Open
Onions, Dry	

**Note: Specific language adopted from the Census of Agriculture.**

When estimating demand, 275 people per item per day was the estimate, assuming everyone receives each item, since Dining Services anticipates serving 250 to 300 daily.<sup>23</sup> This estimate attempts to approximate the demand the Wellness Café will have for each item. After gathering the data for both local food supply and demand, demand was divided by supply in order to understand the overall percentage of the local food supply the Wellness Café will demand. A detailed summary of the supply and demand is located in Appendix E.

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<sup>23</sup> Fearn, Alison. "Senior Research: Local Food in the Café." Message to Director of Dining Services. 24 Sep. 2010. E-mail.

## VI. Results

Table 3 lists the percentage of the local food supply the Wellness Café will consume if they follow the sample menu for each produce item identified.

**Table 3: Percentage of Local Produce Consumed By Wellness Café**

Produce	Percentage Consumed By Wellness Café
Beets	1.6%
Broccoli	1.8%
Cabbage, Head	2.7%
Carrots	4.7%
Cucumbers and Pickles	.14%
Garlic	2.4%
Lettuce, All	4.3%
Onions, Dry	4.6%
Peppers, Bell	.41%
Potatoes	.08%
Potatoes, Sweet	.74%
Pumpkin	.03%
<i>Spinach</i>	<i>109%</i>
Sweet Corn	.00%
Tomatoes	.00%

The results suggest that the Wellness Café could easily purchase 100% of the specified items without greatly decreasing the supply of the specified produce for other consumers. Overall, the Wellness Café will demand less than five percent of the supply of each item produced, except for spinach, of which the Wellness Café will demand more than the available supply. The Wellness Café would demand approximately 4% of all

lettuce, onions, and carrots. If the calculations are accurate, they suggest that the Wellness Café should purchase all of these items locally when available, *ceteris paribus*.

It is important that UNCA's Dining Services consider other consumers in the region when making local food purchases. This data enables Dining Services to make informed decisions. Initially, the research anticipated finding that the Wellness Café purchases of local food would overwhelm the available supply. However, the only example of this is spinach, suggesting that perhaps not all spinach should be purchased from local producers, because of the various impacts that could have on other local consumers. If the Wellness Café purchased 100% of all available spinach, no other individuals could enjoy local spinach, farmers may be more inclined to start growing spinach instead of other crops, thus limiting the available selection at markets, and the cost of spinach may increase.

Consuming 4% of some items is not a negligible number, although it is not as high as expected. As of 2002, three Western North Carolina (WNC) colleges had some form of a farm-to-college program, and twelve Western North Carolina colleges had no program whatsoever. If the Wellness Café was to consume 5% of the specified vegetables, and the other universities did the same, WNC universities alone would demand 75% of the produce. If colleges alone consumed 75% of the specified produce, then other schools, restaurants, and consumers may no longer have access to it, or there may be an increase in price that would inhibit other individuals to purchase such items. Also, farmers may have an increased incentive to deal directly with colleges, rather than attending weekly markets. Dealing directly with colleges could decrease farmers' transaction costs and allow them to have a guaranteed buyer. Initially, in the short run

price could increase due to the increase in demand. In the long-run, the supply may increase due to an increase in production as farmers respond to the potentially lucrative sales. Although the total amount of land is finite, supply can increase as farmers adopt practices that increase total yield.

Recognizing that the overall amount of these items is not a concern is a valuable tool in moving forward. It demonstrates the actual issues that need to be addressed in order for the Wellness Café to be able to obtain locally grown food. The large gap between the supply and the demand, specifically of the quantity grown, bolsters ASAP's argument that the issue is not merely about how much of what is grown, but that there are other factors impacting the available supply. *Growing Local: Expanding the Local Food Economy*, explains that “[s]upply is understood to include more than just production. It includes issues related to the food procurement and distribution system, issues involving equipment, facilities, and processes for moving food from farm to market.”<sup>24</sup> In order for UNCA to reach its goal in the Café of 20% of food purchases from local sources, it is vital that they identify what barriers exist in the supply network.

One hurdle impacting the supply is the insurance requirement. In order to sell to UNCA, farmers must have insurance that “provide[s] some protection in the event that the food product insured causes injury to a user. Most retail outlets ‘require’ that food products have a minimum level (normally at least a \$1 million policy and often \$2 million) of product liability coverage before they will carry it.”<sup>25</sup> Food product liability

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<sup>24</sup> Kirby, Laura D., Charlie Jackson, and Allison Perrett. *Growing Local: Expanding the Western North Carolina Food and Farm Economy*. [Asapconnections.org](http://Asapconnections.org) ASAP and SARE, 2007. Web 25 Aug. 2010.

<sup>25</sup> Holland, Rob. “Food Product Liability Insurance.” Center for Profitable Agriculture. University of Tennessee, Jan. 2007. Web. 15 Nov. 2010.

coverage can cost farmers around \$3,000 a year<sup>26</sup>, and is a necessary cost if they wish to sell produce to UNCA.

There will be several other products sold in the Wellness Café that were not included in the data set, most importantly, meat. ASAP explains that, “[i]n the short-term, fruits and vegetables hold the greatest potential for being made available to local markets due to the reduced infrastructure requirements for produce compared to livestock, poultry, and animal products.”<sup>27</sup> Meat was not included in the analyses for a variety of reasons including the fact that the Census of Agriculture reports number of animals as opposed to total pounds of meat. Due to a lack of local meat processing facilities, farmers have to send their animals long distances to get slaughtered, which causes the overall carbon footprint to increase. It is not necessarily the amount produced, but rather the other necessary requirements, such as competitive pricing, post-harvest handling, infrastructure, food safety and traceability, and liability insurance that create a disconnect between the amount demanded and the amount available to institutions.

## **VII. Discussion**

The University of North Carolina Asheville has a unique and rare opportunity to allow the new Wellness Café to act as a model for sustainable and local food facilities. ‘Local’ is increasingly popular on college campuses, although most colleges still identify several barriers as to why they do not have more local food, including issues of supply, cost, availability, seasonality and liability concerns. According to ASAP, when surveyed,

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<sup>26</sup> Ibid.

<sup>27</sup> Kirby, Laura D., Charlie Jackson, and Allison Perrett. Growing Local: Expanding the Western North Carolina Food and Farm Economy. [Asapconnections.org](http://Asapconnections.org) ASAP and SARE, 2007. Web 25 Aug. 2010.

“[t]he top two barriers to local purchasing named by the 15 foodservice directors surveyed were food safety issues and product price.”<sup>28</sup>

Although information on overall production, total acres, and number of farms, is available, it is unknown if these farms have the insurance and delivery methods necessary to be providers for UNCA. Although this is unknown, it is not likely to be a barrier because UNCA is fortunate to have a Director of Dining Services who is working closely with ASAP. ASAP provides a directory titled *The Mixing Bowl*<sup>29</sup> that helps larger institutions such as UNCA connect with the appropriate farms, so that such local purchases can be made. Currently, there are 88 farms listed in the directory that claim to sell to schools, colleges, hospitals or other food service providers.

The Western North Carolina farm economy is in a period of transition, in which the overall number of farms is declining. This decline is due partially to the end of the federal tobacco price support and supply control program.<sup>30</sup> Considering this period of transition, this research can act as a basis for future research on the issues of supply and demand. The more research conducted on what consumers are demanding, the more farmers will be able to know what and how much to produce. For example, according to this research, currently there is not enough spinach produced within a 150 – mile radius to provide the Wellness Café with enough spinach, much less other consumers. If new farmers and/or farmers making the transition from tobacco, are trying to identify

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<sup>28</sup> Kirby, Laura D. Results from a Western North Carolina Farm-to-College Survey. Asheville, NC: Phone interviews, Appalachian Sustainable Agriculture Project, 2004-2006. Web. 20 Sep 2010 < <http://www.asapconnections.org/research.html>>

<sup>29</sup> The Mixing Bowl: Farm to Business Trade Directory. Appalachian Sustainable Agriculture Project. Web. 20 Sep. 2010. < <http://buyappalachian.org/mixingbowl> *WNC and southern Appalachian buyer's guide to the products that local farms offer to businesses, and a farmer's guide to products wholesale buyers are seeking.*

<sup>30</sup> Kirby, Laura D., Charlie Jackson, and Allison Perrett. Growing Local: Expanding the Western North Carolina Food and Farm Economy. [Asapconnections.org](http://Asapconnections.org) ASAP and SARE, 2007. Web 25 Aug. 2010.

something to grow, they may now consider spinach as a potentially profitable option. Also, if farmers are able to make contracts with Universities, such as UNCA, the contracts will decrease uncertainty and make it less risky for the farmer to try growing new crops.

Another important factor in purchasing local food for the Wellness Café is understanding *why* local food is being purchased over conventional food. Purchasing local food may not always be the best option if the reasoning is to reduce carbon footprint. If it is the goal of the Wellness Café to provide local food in order to be more environmentally conscious, it is important to realize that local does not always mean a lower carbon footprint. The United Kingdom's Department for Environment, Food, and Rural Affairs (DEFRA) explains that

The relationship of food transport to overall sustainability is complex. We have established that the transport of food has significant direct environmental, economic and social impacts. Therefore, in like for like systems, where food supply chains are identical except for transport distance, reducing food transport will improve sustainability. However, differences between food supply systems often involve trade-offs between various environmental, social and economic effects.<sup>31</sup>

Thus, future research needs to examine the production methods of the specific items the Café wishes to purchase locally to determine their environmental impact. DEFRA explains that transport mode, transport efficiency, differences in food production systems, wider economic and social costs and benefits are important pieces of information to consider when calculating 'food miles'.<sup>32</sup>

If it is the goal of the University to support the local economy, local heritage and the preservation of farmland, then it is vital that local food be incorporated into the

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<sup>31</sup> United Kingdom. Dept. of Environment, Food and Rural Affairs. *The Validity of Food Miles as an Indicator of Sustainable Development*. AEA Technology Environment, July 2005. Web. 5 Nov. 2010

<sup>32</sup> Ibid.

Wellness Café. John Maynard Keynes' Local Multiplier Effect (LME) can be used to show the impact that local food purchases have on the local economy. ASAP explains that, within their region studied,

\$452 million of spending on local farm products would add more than that to the local economy as local farmers re-spend the money on products and services in the local community. There are many factors which influence the number of times dollars are thought to recirculate, but LME's are commonly reported to range from 1.5 to 3 times. Within that range, the impact to the local economy of \$452 million in spending on local farm products would be \$678 million to nearly \$1.4 billion.<sup>33</sup>

ASAP determined that if just half of Western North Carolina family's spend \$10 on local food each week \$452 million would stay in the local economy.<sup>34</sup> Although UNCA's impact may not be as significant as that of all families' consumption combined, the University would have a positive economic impact on the region. Future research could examine the overall economic impact UNCA's purchases would have on the region's economy. Also, by purchasing from local farmers, farms are more likely to remain in the region, thus contributing to increased tourism and the maintenance of the region's beautiful landscape.

### **VIII. Future Research**

The contract with Chartwells is renegotiated every five years, and in order to change the current contract, students and faculty alike must express their preferences.<sup>35</sup>

Obviously, there are other issues that have to be addressed, such as transportation costs,

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<sup>33</sup> Kirby, Laura D., Charlie Jackson, and Allison Perrett. Growing Local: Expanding the Western North Carolina Food and Farm Economy. [Asapconnections.org](http://Asapconnections.org) ASAP and SARE, 2007. Web 25 Aug. 2010.

<sup>34</sup> et al.

<sup>35</sup> Panucci, Alanna. "Additional Outcomes for an Additional Price: A Cost-effectiveness Analysis of Purchasing Local Food for the Wellness Café." UNCA Senior Research in Economics. 24 April 2010. E-mail.

processing issues, and insurance requirements. However, if the demand is there, and the supply of locally produced items is available, the main question left to answer is--*how does UNCA do it?* Future research could examine these variables in an effort to determine how UNCA can increase the amount of local food that is available to the Wellness Café. Future research could also examine a variety of levels of ‘local’. A 150-mile radius may seem high, so researchers could focus on a more restrictive definition of local. Studies could be performed to determine what is available with 50-miles and 100-miles, which could help create a preference system, giving priority to the most ‘local’ sources.

### **VIII. Conclusion**

This research provides a launching point for understanding how, and how much of what, the Wellness Café should buy from local sources. Since UNCA has specific sustainability goals set out by the Strategic Plan, the University must recognize their position and power as a relatively large food consumer in the local food system. As Chris Wille of the Rainforest Alliance explains, “consumers really do have the power to send a message back all the way through that complicated supply chain. If the message is frequent, loud and consistent enough, then they can actually change practices.”<sup>36</sup> UNCA has the power and opportunity to have a positive economic impact on the region, and the potential to benefit the environment, by becoming increasingly focused on their food purchases.

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<sup>36</sup> “Voting with your trolley: Can you really change the world just by buying certain foods?.” Economist.com. The Economist, 7 Dec 2006. Web. 30 Oct. 2010.

**Appendix A: Sample Seasonal Menus<sup>37</sup>**

**The Wellness Café**

Spring Breakfast, Lunch and Dinner Menu

**Breakfast Options-** Served from 8:30 -11:00 am

*Eggs and turkey bacon*

-Eggs and turkey can be obtained locally

*Breakfast biscuit*

-Eggs, turkey sausage, turkey bacon and ham can be obtained locally

**Lunch and Dinner Options-**Served from 11:00-6:00

**Vegetarian Options**

*Kale with Root Vegetable*

Vegetables that can be grown and purchased locally: Red Potatoes, onions, garlic, and kale

*Baked Sweet Potato Sticks*

Vegetables that can be grown and purchased locally: Sweet Potatoes

*Salad Bar*

Vegetables that can be grown and purchased locally: Leaf/head lettuce, tomatoes, onions, peas, cucumbers, peppers, beets, cabbage, broccoli

*Minestrone Soup*

Vegetables that can be grown and purchased locally: tomatoes, onions, beans, and peppers

**Non-vegetarian Options:**

*Ham, Turkey and Chicken Sandwiches*

Meat and vegetables that can be grown and purchased locally: pork, turkey, chicken, bologna, lettuce, tomatoes, and onions

\* All protein was grass fed

*Chicken Chili*

Meat and vegetables that can be grown and purchased locally: chicken, tomatoes, and onions

\*All protein was grass fed

*Chicken Noodle Soup*

Meat and vegetables that can be grown and purchased locally: Chicken, onions, and celery

\*All protein was grass fed

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<sup>37</sup> *Healthy Food Environment Guidelines for University of North Carolina Asheville*. Rep. UNC Asheville, 3 Dec. 2009. Web. 20 Sep 2010. <<http://www2.unca.edu/foodforthought/SubPage/2009Guidelines.pdf>>.

# The Wellness Café

## Summer Breakfast, Lunch and Dinner Menu

### **Breakfast Options-** Served from 8:30 -11:00 am

*Eggs and turkey bacon*

-Eggs and turkey can be obtained locally

*Breakfast biscuit*

-Eggs, turkey sausage, turkey bacon and ham can be obtained locally

*Granola*

-Oats, strawberries, blue berries

### **Lunch and Dinner Options-**Served from 11:00-6:00

#### **Vegetarian Options:**

*Kale with Root Vegetable* vegetables that can be grown and purchased locally: Potatoes, onions, garlic, and kale

*Baked Sweet Potato Sticks*

Vegetables that can be grown and purchased locally: Sweet Potatoes

*Vegan Green Bean Casserole*

Vegetables that can be grown and purchased locally: Green beans, mushrooms, garlic

*Vegetarian Paella*

Vegetables that can be grown and purchased locally: Garlic, bell peppers, onions, tomatoes, corn, and peas

*Salad Bar*

Vegetables that can be grown and purchased locally: Romaine and Bibb lettuce, tomatoes, onions, peas, carrots, peppers, and mushrooms

#### **Non-Vegetarian Menu Options:**

*Ham, Turkey and Chicken Sandwiches*

Meat and vegetables that can be grown and purchased locally: pork, turkey, chicken, bologna, lettuce, tomatoes, and onions

\* All meat was grass fed

*Chicken Chili*

Meat and vegetables that can be grown and purchased locally: Chicken, tomatoes, onions, and corn

\*All protein was grass fed

*Chicken Noodle Soup*

Meat and vegetables that can be grown and purchased locally: Chicken, carrots, onions, and celery

\*All protein was grass fed

# The Wellness Café

## Fall Breakfast, Lunch and Dinner Menu

### **Breakfast Options-** Served from 8:30 -11:00 am

*Eggs and turkey bacon*

-Eggs and turkey can be obtained locally

*Breakfast biscuit*

-Eggs, turkey sausage, turkey bacon and ham can be obtained locally

*Apple and Peach Granola*

-Oats, apples, peach

### **Lunch and Dinner Options-**Served from 11:00-6:00

#### **Vegetarian Options:**

*Baked Sweet Potato Sticks*

Vegetables that can be grown and purchased locally: Sweet Potatoes

*Vegan Green Bean Casserole*

Vegetables that can be grown and purchased locally: Green beans, garlic

*Baked Acorn Squash*

*Miso Soup with Pumpkin and Onion*

Vegetables that can be grown and purchased locally: Pumpkins, onions, and cilantro

*Salad Bar*

Vegetables that can be grown and purchased locally: Head/leaf Lettuce, tomatoes, onions, peas, peppers, carrots, and spinach

#### **Non-Vegetarian Menu Options:**

*Ham, Turkey and Chicken Sandwiches*

Meat and vegetables that can be grown and purchased locally: pork, turkey, chicken, bologna, lettuce, tomatoes, and onions

\* All protein was grass fed

*Chicken Chili*

Meat and vegetables that can be grown and purchased locally: chicken, tomatoes, onions, and corn

\*All protein was grass fed

*Chicken Noodle Soup*

Meat and vegetables that can be grown and purchased locally: Chicken, carrots, onions, and celery

\*All protein was grass fed

# The Wellness Café

## Winter Breakfast, Lunch and Dinner Menu

### **Breakfast Options-** Served from 8:30 -11:00 am

*Eggs and turkey bacon*

-Eggs and turkey can be obtained locally

*Breakfast biscuit*

-Eggs, turkey sausage, turkey bacon and ham can be obtained locally

*Apple Granola*

-Oats, apples

### **Lunch and Dinner Options-**Served from 11:00-6:00 pm

#### **Vegetarian Options:**

*Baked Sweet Potato Sticks*

Vegetables that can be grown and purchased locally: Sweet Potatoes

*Vegan Green Bean Casserole*

Vegetables that can be grown and purchased locally: Green beans, garlic

*Vegetarian Paella*

Vegetables that can be grown and purchased locally: Garlic, bell peppers, onions, tomatoes, corn, and peas

*Salad Bar*

Vegetables that can be grown and purchased locally: Head/leaf Lettuce, tomatoes, onions, peas, peppers, apples, grapes, peaches

#### **Non-Vegetarian Menu Options:**

*Ham, Turkey and Chicken Sandwiches*

Meat and vegetables that can be grown and purchased locally: pork, turkey, chicken, bologna, lettuce, tomatoes, and onions

\* All protein was grass fed

*Chicken Chili*

Meat and vegetables that can be grown and purchased locally: chicken, tomatoes, onions, and corn

\*All protein was grass fed

*Chicken Noodle Soup*

Meat and vegetables that can be grown and purchased locally: Chicken, carrots, onions, and celery

\*All protein was grass fed

## **Appendix B: Sample Ingredient List and Serving Sizes**<sup>38</sup>

### ***Kale with Root Vegetables***

1 bunch green or purple kale 1 medium parsnip, chopped into bite-size pieces. 1 medium turnip, chopped into bite-sized pieces. 2 medium red potatoes, chopped into bite-sized pieces. 1 small yellow onion, diced. 3 cloves garlic, diced olive oil balsamic vinegar dash of pepper water  
Makes 2-4 Servings

### ***Baked Sweet Potato Sticks***

1 T olive oil  
½ teaspoon paprika  
8 sweet potatoes, sliced lengthwise into quarters  
Makes 8 Servings

### ***Vegan Green Bean Casserole***

2 Servings  
Beans: 2 quarts water  
1 T table salt  
Sauce: 10 ounces mushrooms (I used a combination of regular button mushrooms and shiitake)  
3 cloves garlic, minced  
2 tablespoons flour  
¾ cup vegetable broth  
1 tablespoon dry sherry  
¾ cup soy creamer  
Topping: 1 ½ slices whole grain bread  
1 tablespoon Earth Balance margarine  
1/8 teaspoon salt

### ***Miso Soup with Pumpkin and Onion***

2-4 Servings  
2 T peanut or canola oil  
1 medium onion, thinly sliced  
2c / ¾ pound fresh pumpkin, peeled and cubed  
4 C vegetable stock  
2 ½ to 4 T miso  
2 T cilantro, chopped

### ***Vegetarian Jambalaya***

4 servings  
1½ T butter  
3 c onions, chopped  
2 bell peppers, seeded and chopped  
2 c scallions, finely chopped  
2 cloves garlic, minced  
1 c parsley, chopped  
1 t fresh or dried thyme  
3 bay leaves  
2 pinches cayenne pepper  
1¼ c brown rice, uncooked  
4 plum tomatoes, finely chopped  
1 T tomato paste  
3 ¾ c water  
1/3 c lentils, uncooked  
1 t salt  
2 ears corn, quartered  
20 olives, pitted  
Black pepper

### ***Vegetarian Paella***

6 servings  
2 T olive oil  
3-4 cloves garlic, minced  
1 bell pepper, sliced or diced  
1 medium onion, diced  
1 t paprika  
½ t pepper  
¼ t crushed saffron  
2 c white rice, uncooked and rinsed  
3 c boiling water  
2 ripe tomatoes, seeded and diced  
1 c peas  
1 c corn

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<sup>38</sup> *Healthy Food Environment Guidelines for University of North Carolina Asheville*. Rep. UNC Asheville, 3 Dec. 2009. Web. 20 Sep 2010. <<http://www2.unca.edu/foodforthought/SubPage/2009Guidelines.pdf>>.

**Appendix C: Counties Within 150 Miles of Campus**

North Carolina	Tennessee	Virginia	Georgia	South Carolina
Alexander Alleghany Ashe Avery Buncombe Burke Cabarrus Caldwell Catawba Cherokee Clay Cleveland Davidson Davie Forsyth Gaston Graham Haywood Henderson	Blount Carter Claiborne Cocke Grainger Greene Hamblen Hawkins Jefferson Johnson Knox Loudon Monroe Polk Sevier Sullivan Unicoi Union Washington	Dickenson Grayson Lee Russell Scott Smyth Washington Wise	Banks Elbert Fannin Franklin Gilmer Habersham Hall Hart Jackson Lumpkin Madison Oglethorpe Rabun Stephens Townes Union White	Abbeville Anderson Cherokee Chester Edgefield Fairfield Greenville Greenwood  Laurens McCormick Newberry Oconee Pickens Saluda Spartanburg Union York
Iredell Jackson Lincoln Macon Madison McDowell Mecklenburg Mitchell Polk Rowan Rutherford Stanly Stokes Surry Swain Transylvania Union Watauga Wilkes Yadkin Yancey				

## Appendix D: Total Yields

<i>Supply</i>	Per 100ft. Row		Total per Acre*	SC # of Acres	SC Yield	NC # of Acres	NC Yield	GA # of Acres	GA Yield	VA # of Acres	VA Yield	TN # of Acres	TN Yield	<i>Total Yield w/n Radius</i>	
Apples			\	496		7,173		539		106		451			
Beans, Snap	30	lbs.	3,900	246	<b>959,400</b>	886	<b>3,455,400</b>	36	<b>1,080</b>	68	265,200	103	<b>401,700</b>	<b>5,082,780</b>	<i>lbs.</i>
Beets	110	lbs.	14,300		<b>0</b>	10	<b>143,000</b>	0	<b>0</b>	0	0	0	<b>0</b>	<b>143,000</b>	<i>lbs.</i>
Broccoli	70	heads	9,100	1	<b>9,100</b>	14	<b>127,400</b>	1	<b>70</b>	1	9,100	2	<b>18,200</b>	<b>163,870</b>	<i>heads</i>
Cabbage, Head	85	heads	11,050	4	<b>44,200</b>	88	<b>972,400</b>	0	<b>0</b>	3	33,150	8	<b>88,400</b>	<b>1,138,150</b>	<i>heads</i>
Carrots	150	lbs.	19,500		<b>0</b>	3	<b>58,500</b>	1	<b>150</b>	0	0	0	<b>0</b>	<b>58,650</b>	<i>lbs.</i>
Celery			0		<b>0</b>	0	<b>0</b>		<b>0</b>		0	0	<b>0</b>	<b>0</b>	
Cucumbers and Pickles	170	lbs.	22,100	104	<b>2,298,400</b>	471	<b>10,409,100</b>	2	<b>340</b>	25	552,500	37	<b>817,700</b>	<b>14,078,040</b>	<i>lbs.</i>
Garlic	350	heads	45,500		<b>0</b>	7	<b>318,500</b>	0	<b>0</b>		0	2	<b>91,000</b>	<b>409,500</b>	<i>heads</i>
Grapes				170		1,969		253		30		111		<b>0</b>	
Kale			0		<b>0</b>	6	<b>0</b>	0	<b>0</b>		0	0	<b>0</b>	<b>0</b>	
Lettuce, All	100	heads	13,000	0	<b>0</b>	25	<b>325,000</b>	3	<b>300</b>		0	2	<b>26,000</b>	<b>351,300</b>	<i>heads</i>
Onions, Dry	220	lbs.	28,600	6	<b>171,600</b>	2	<b>57,200</b>	0	<b>0</b>		0	0	<b>0</b>	<b>228,800</b>	<i>lbs.</i>
Peaches			0	12,479	<b>0</b>	411	<b>0</b>	76	<b>0</b>	5	0	59	<b>0</b>	<b>0</b>	
Peas, Green (Excluding Southern)	40	lbs.	5,200	0	<b>0</b>	0	<b>0</b>		<b>0</b>	8	41,600	0	<b>0</b>	<b>41,600</b>	<i>lbs.</i>
Peas, Green Southern, Blackeyed, Crowder,	20	lbs. shelled	2,600	9	<b>23,400</b>	46	<b>119,600</b>	1	<b>20</b>		0	0	<b>0</b>	<b>143,020</b>	<i>lbs. shelled</i>
Peppers Other Than Bell (Including Chile)	200	lbs.	26,000	46	<b>1,196,000</b>	343	<b>8,918,000</b>	1	<b>200</b>	2	52,000	10	<b>260,000</b>	<b>10,426,200</b>	<i>lbs.</i>
Peppers, Bell (Excluding Pimientos)	125	lbs.	16,250	4	<b>65,000</b>	46	<b>747,500</b>	5	<b>625</b>	8	130,000	1	<b>16,250</b>	<b>959,375</b>	<i>lbs.</i>
Potatoes	200	lbs.	26,000	28	<b>728,000</b>	460	<b>11,960,000</b>	18	<b>3,600</b>	121	3,146,000	74	<b>1,924,000</b>	<b>17,761,600</b>	<i>lbs.</i>
Potatoes, Sweet	200	lbs.	26,000	23	<b>598,000</b>	76	<b>1,976,000</b>	2	<b>400</b>		0	10	<b>260,000</b>	<b>2,834,400</b>	<i>lbs.</i>
Pumpkin	150	lbs.	19,500	12	<b>234,000</b>	338	<b>6,591,000</b>	5	<b>750</b>	135	2,632,500	301	<b>5,869,500</b>	<b>15,327,750</b>	<i>lbs.</i>
Spinach	40	lbs.	5,200	0	<b>0</b>	2	<b>10,400</b>		<b>0</b>	0	0	0	<b>0</b>	<b>10,400</b>	<i>lbs.</i>
Squash, Winter	150	lbs.	19,500	0	<b>0</b>	19	<b>370,500</b>	0	<b>0</b>	3	58,500	0	<b>0</b>	<b>429,000</b>	<i>lbs.</i>
Sweet Corn	120	ears	15,600	901	<b>14,055,600</b>	1,686	<b>26,301,600</b>	86	<b>10,320</b>	133	2,074,800	396	<b>6,177,600</b>	<b>48,619,920</b>	<i>ears</i>
Tomatoes in the Open	250	lbs.	32,500	231	<b>7,507,500</b>	2,193	<b>71,272,500</b>	53	<b>13,250</b>	58	1,885,000	579	<b>18,817,500</b>	<b>99,495,750</b>	<i>lbs.</i>

**Appendix E- Supply and Demand**

		<b>Total Demanded For Wellness Café (lbs)</b>	<b>Total Yield w/n Radius</b>		<b>Percentage of demand in regards to total availability</b>
Beets		2,300.80	143,000.00	lbs.	1.609%
Broccoli		3,045.42	163,870.00	heads	1.858%
Cabbage, Head		30,387.28	1,138,150.00	heads	2.670%
Carrots		2,770.52	58,650.00	lbs.	4.724%
Cucumbers and Pickles		20,146.64	14,078,040.00	lbs.	0.143%
Garlic		10,181.31	409,500.00	heads	2.486%
Lettuce, All		15,180.00	351,300.00	heads	4.321%
Onions, Dry		10,627.50	228,800.00	lbs.	4.645%
Peppers, Bell (Excluding Pimientos)		3,982.47	959,375.00	lbs.	0.415%
Potatoes		14,591.21	17,761,600.00	lbs.	0.082%
Potatoes, Sweet		21,753.00	2,834,400.00	lbs.	0.767%
Pumpkin		4,743.75	15,327,750.00	lbs.	0.031%
Spinach		11,378.50	10,400.00	lbs.	109.409%
Sweet Corn		715.80	48,619,920.00	ears	0.001%
Tomatoes in the Open		5,578.87	99,495,750.00	lbs.	0.006%

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