Growing and Eating for Better Health

A guide to starting community gardening and nutrition programs at affordable housing complexes

The County of Arlington, Virginia has developed a comprehensive approach for improving the food environment in low-income urban areas. The implementation of community gardens will not only increase access to affordable, healthy food for residents, but will create an opportunity to engage residents in taking a hands-on approach to improving their community. The United States Department of Housing and Urban Development (HUD) promotes the use of gardens to help residents in low-income areas make their neighborhoods safer, to create more green space and as beautification projects.

The community garden project in Arlington was designed to help engage residents in physical activity through maintaining the gardens and to promote healthful eating. Programs in both gardening and nutrition were provided to connect residents to the land and to develop a strong foundation. The project in Arlington was modeled off of the success of a similar project in Alexandria, VA. Both gardens are featured as case studies.

This manual is designed to assist other public housing developments in starting their own gardens. Two case studies from northern Virginia are highlighted to show the successes and lessons learned in implementing gardens in an urban environment. Tips are provided on starting the garden and how to manage the garden as residents become involved. Nutrition curriculum is provided to help motivate residents to use the produce in a healthful, balanced diet. We hope that this guide will provide all of the information and resources needed to promote a healthy lifestyle.

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What is a community garden?

Community gardens are areas of unused open space where neighbors gather to collectively manage and care for a piece of land. These areas serve as a way for urban residents to grow their own fruits and vegetables, and to interact with both the environment and their neighbors. Community gardens are a safe, recreational green space in urban areas with little or no park land, and can contribute to keeping urban air clean. Community gardens provide unique benefits to residents. Community members grow their own produce, thereby reducing grocery bills, engage in exercise and enjoy nature while tending the garden, and they provide a time for socializing. Gardens also help to increase fruit and vegetable consumption by increasing the availability of these items and improve skills in food preparation if combined with nutrition education. Residents will benefit from having increased access to land for food production, resulting in an innovative way to create food security. Community gardens do not require large areas of land and can be as simple as a few raised beds in a park or residential area.

Why are community gardens beneficial to low-income housing developments?

In 2009, 17.4 million U.S. households were food insecure, leaving 33 million adults and 17.2 million children unsure of where their next meal would come from. Rates of food insecurity are disporportionately higher among minority households. While the national average of households with food insecurity is 10.9%, Black households experience food insecurity at a rate of 21.8% and Hispanic households at a rate of 19.5% (USDA/ERS, 2009). Low-income minority communities are disproportionately affected by both obesity and food insecurity, creating concerns about access to nutritional foods. This lack of access has led to poor diets which are high in caloric intake but inadequate in nutrients.

Community gardens improve food security by increasing the availability of nutritious foods, such as fruits and vegetables. Community gardening offers other benefits to society such as reductions in crime, vandalism, and health care costs as well as increased social cohesion.

While many low-income minority neighborhoods may not have access to parks, there is often a surplus of vacant lots. These unused areas are often an indicator of neighborhood deterioration and associated with crime (Cohen, 2000). Studies suggest that environments in disrepair often attract more crime (Frumkin, 2005). Gardens can turn these vacant areas into a resource that benefits the community. A garden provides opportunities for informal gatherings that help build a sense of community and pride. Neighborhoods near community gardens consistently experience a decrease in reported criminal activity, and the gardens allow residents to reclaim their neighborhood (Bremmer, 2003). The safety and vitality of a community rely upon the pride and ownership that residents have for their neighborhood. Community gardens offer a focal point for neighborhood organizing and can increase safety by providing more eyes on the area. Gardens also provide a safe place for children to interact and play.

Families and households susceptible to food insecurity lack adequate access to nutritional foods, resulting in poor diets. Community gardens offer access to fresh produce at a low price and can supplement diets of those using food assistance programs. Gardens not only offer a convenient source of food but also serve as a place for nutrition education. Combining basic education on growing food along with information on how to use the produce with healthy recipes can have positive impacts in promoting dietary changes. Gardening is also a moderate form of exercise, promoting increased physical activity among residents (Dorn, 2009). Community gardens provide a unique outlet to combat obesity and chronic diseases by increasing fruit and vegetable consumption, and by providing a space for physical activity.

Community gardens are also known to improve residents' sense of wellbeing and pride in their neighborhood. In addition to creating a more attractive area, gardens may promote a sense of attachment in low-income housing developments. By promoting pride in one's home, residents may take better care of their home and the surrounding area. Additionally, gardens help lower stress and with improved diets this may decrease sick time away from work and promote stable employment (Armstrong, 2000). The health, social and economic benefits of a garden will all help improve resident retention.

Health Benefits of Gardening

Gardening provides regular physical exercise to aid in the prevention of heart disease, obesity, type 2 diabetes and high blood pressure. One of the primary steps in diabetes management is getting enough physical activity. Gardeners can easily achieve the recommended 150 minutes per week of exercise. It also provides moderate strength training, which is a step in the prevention of osteoporosis. Carrying a gallon sprinkling can full of water in each hand is like lifting 8 pound dumbbells. Pushing a wheelbarrow is a good bicep workout. Additional activities such as pulling weeds, carrying soil and compost and digging holes are other gardening activities that will also give you a workout (Main, 2011). As with any physical activity it's best to learn proper techniques so you don't hurt yourself. Check with your doctor if you have specific concerns.

Gardening connects you with nature and the rhythm of life. Studies have revealed just viewing a garden or nature has healthy psychological benefits. One study found that older adults that regularly garden have higher levels of overall life satisfaction (Sommerfeld, 2010). Gardening can be especially beneficial for people with special needs or those recovering from illness. Gardening promotes an increased range of motion, develops eye-hand coordination, improves motor skills and increases self esteem (Mason, 2005). Over the past few years special tools and garden designs to make gardens more accessible have become readily available.

In addition to the regular physical activity of gardening, the gardens produce a wide range of fruits and vegetables that are also important in the prevention of chronic disease. Gardening is a great way to improve your diet and to participate in activities that will help to improve your health.

Arlington County/Alexandria City Health Statistics

Both Arlington County and Alexandria City have health statistics that are better than the Virginia state averages. Table 1 lists a number of important health criteria that could be improved through community gardening and increased access to locally grown foods.

	Arlington County	**Alexandria City**	**State of Virginia**
% overweight/obese	40.1%	51.6%	61.7%
% consuming 5 or more servings of fruit and vegetables per day	**68.4%**	**70.6%**	**73.7%**
% with diabetes	5.1%	3.9%	7.8%
% with high blood pressure	21.3%	20.1%	28.0%
% with high cholesterol	32.4%	30.5%	38.1%
% physically inactive	46.4%	45.6%	49.8%
% living below 100% poverty	6.8%	6.7%	9.9%

Table 1 – Major health risk factors for Arlington, Alexandria and Virginia State rates (VDH, 2010)

Both Arlington and Alexandria have lower rates of fruit and vegetable consumption compared to the overall state rate, of 73.7% of residents (VDH, 2010). This shows the importance of providing fresh fruits and vegetables in a way that is accessible and affordable. Community gardens will not only improve the rates of fruit and vegetable consumption, but will also improve physical activity rates and provide important nutrients for preventing chronic diseases.

	Arlington County	**Alexandria City**	**State of Virginia**
% food insecure	7.2% (14,900)	8.9% (12,640)	11.8%
% living below 130% poverty	32%	36%	40%

Table 2 – Food insecurity rates (Feeding America, 2011)

Arlington County has relative low food insecurity rates when compared to the state average, as seen in table 2. In 2008, there were 45 grocery stores in Arlington and 37 stores in Alexandria. There are currently 8 community gardens sponsored by the Arlington County government and 3 in Alexandria. While Arlington and Alexandria are on a good track to provide food to all residents, our neighborhoods lack any source of direct agriculture. Urban areas rely heavily upon community gardens and container gardens in private residences to be able to participate directly in the local food system. It is increasingly important to preserve and create new green space through community gardens. Not only will they help to improve rates of fruit and vegetable consumption but will improve local food security.

Hopkins-Tancil Court, Alexandria

The Hopkins-Tancil Court garden project came to life through an ACHIEVE (Action Communities for Health, Innovation, and EnVironmental change) grant awarded by the Centers for Disease Control (CDC) via the National Association of County and City Health Officials. Alexandria was selected because of the high rates of childhood obesity and lack of food access. A survey conducted by INOVA Health System found that among Alexandria children ages 2-5 years, 43.5% are overweight or obese. These numbers are significantly higher compared to older children in Alexandria (23.5% of children ages 6-10; 13.1% of children ages 11-14; 13.7% of children ages 15-18). These high rates of obesity could be associated with the large number of residents living in apartment complexes with inadequate play spaces and poor access to healthful food.

In February 2009, the *Partnership for a Healthier Alexandria* received a two-year ACHIEVE grant for $40,000 to support a coalition building and early childhood obesity prevention initiative. Alexandria was chosen by NACCHO as one of ten demonstration sites to address chronic disease risk factors of physical inactivity and poor nutrition at the policy, systems, and environment level to reduce the burden of early childhood obesity. The *Partnership* convened health professionals, early childhood specialists, Virginia Cooperative Extension Master Gardeners, non-profits, local business, community foundations, and other partners to form the Alexandria Childhood Obesity Action Network (A-COAN).

One of A-COAN's overarching goals is to increase access to healthy food. As part of this effort, A-COAN partnered with the Alexandria Redevelopment Housing Authority (ARHA), the Master Gardeners, and a local restaurant group. The garden established at Tancil Court is located in a public housing complex, where most of the residents are African American. The project began with 36 individual plots tended by adults and one children's garden. In the gardens' second year, the number of plots was decreased to 21 in order to enlarge the gardens for the participating residents. Master Gardeners provided technical assistance to start the plots, manage the children's garden, and provide gardening information and education to adult and child participants. A consistent schedule was created to both help residents in their gardens and to learn techniques on

how to use the produce in a healthy way. Along with the time spent gardening, nutrition and cooking classes were provided at a community center once a month for adults and children. Children weeded, watered, and picked produce from their garden that was then used for after school snacks. The gardening project exposed children to new types of food and fostered an understanding of where food comes from. The adults benefited from social interaction, physical activity to maintain the gardens and the cost-saving benefits of growing their own produce. Success in the project can be attributed to the support provided by the housing authority and the relationships that developed between the residents, ARHA staff, and the A-COAN planning committee members.

Virginia Gardens Apartments, Arlington

The Virginia Gardens project was started one year after the gardening project at Tancil Court. In 2010 Arlington received its own ACHIEVE grant for $30,000 from the CDC via the National Recreation and Parks Association (NRPA). The success of the gardens in Alexandria inspired the Arlington Community Health Action Response Team (CHART—a committee charged with implementing the grant) to begin a similar project. The management company AHC, Inc. was approached to find a suitable apartment complex to participate in the project. AHC, Inc. manages a number of properties in Arlington that have a high population of low income residents. Seven of these properties feature community centers with active resident services staff. The Virginia Gardens property was selected based upon the interest of the residents and the availability of land for gardens. Virginia Gardens is also located in one of Arlington's Neighborhood Strategy Areas (NSA), which are neighborhoods showing the greatest need for revitalization as determined by income and socioeconomic trends.

The Arlington CHART determined that a portion of the grant should focus on creating policy and environmental changes that would improve diet and diet-related health outcomes. The garden at Virginia Gardens was one of the components and was designed to provide both access to fresh fruits and vegetables as well as cooking and nutrition classes to residents. The residents at Virginia Gardens are largely non-English speaking Hispanics/Latinos, many of whom are first generation Americans. This gardening and nutrition program was designed with the intention to create this manual to help encourage other low-income apartment complexes to implement similar gardens.

A vegetable garden was started at Virginia Gardens Apartments in the spring of 2011. Because of space limitations, this garden differs from the one at Tancil Court in that there

is only one plot that residents cultivate and harvest together rather than having individual family plots. Virginia Cooperative Extension staff and Master Gardener volunteers taught residents about planting and caring for the garden. In May and June VCE nutrition staff and volunteers taught four nutrition and cooking classes to residents on how to use in-season produce. Another four classes will be offered in the fall.

Community Gardens Development Guide

Finding Support and Partners

Starting a garden can be a lot of work for one person, it will be important to involve members of your community from the beginning. Creating a foundation for long-term success in depend upon the garden community. The vision for your garden should incorporate the community's needs. Identifying partners early will provide a forum for discussion of potential obstacles and opportunities. When looking for partners, it can be helpful to identify shared benefits.

Recruiting neighbors will help protect the area and ensure success. Residents will directly benefit from the garden and will hopefully be enthusiastic about the new project. It will be beneficial to start with a key group of individuals that can assist in the planning process and beginning stages of the garden. The local parks and recreation department may be able to provide free mulch, compost, and soil for the garden, along with other resources. Local churches and community centers may be able to provide volunteers, tools, and other supplies. Visit your local Cooperative Extension office to learn about the best crops to grow in your area and to receive help from Agriculture Natural Resource agents and Master Gardener volunteers. These professionals can provide on-site gardening and nutrition education and may be able to help provide sources for seeds and tools.

Planning the Garden

Look around your neighborhood for an open area of unoccupied space that gets plenty of sun, at least six to eight hours each day. Ensure that the site will not compromise any existing activities. A garden site should be relatively flat and near a water source. Check the site after a rain storm to see how long it takes the soil to absorb the water and where any water might settle. Select an area that is well-drained and does not have many low areas.
It is possible to work with a site that is paved with concrete or asphalt by building raised beds that sit on the surface or using containers.

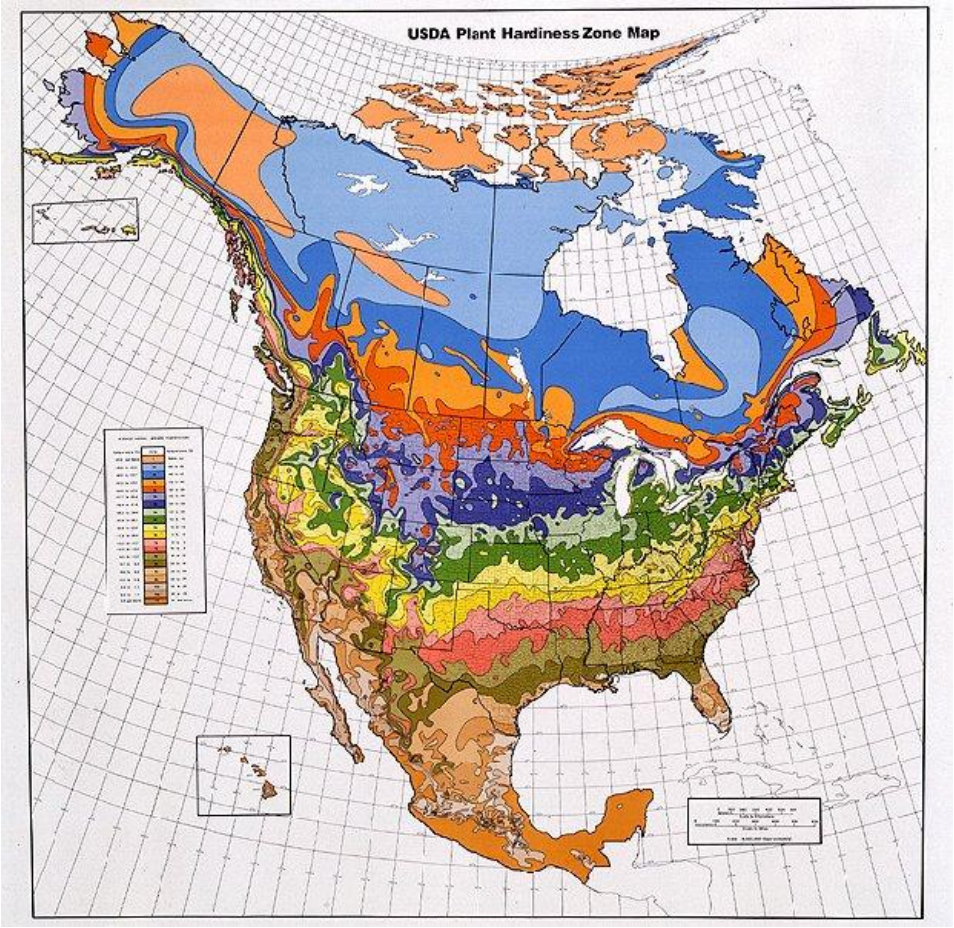
The potential garden site should be accessible to community members during different times of day and days of the week. Facilities such as public restrooms, benches, and shaded areas are also important to consider.

It is important that the garden area has a water source near by. Plant watering will require a spigot and hose. It may also be possible to collect rainwater in your area, but a continuous source of water is critical for the hot summer months. If a direct water source

is not easily accessible, planning for a direct water source includes the plumbing and line installation, hoses and spigot sprinkler equipment, and a plan for paying for the water.

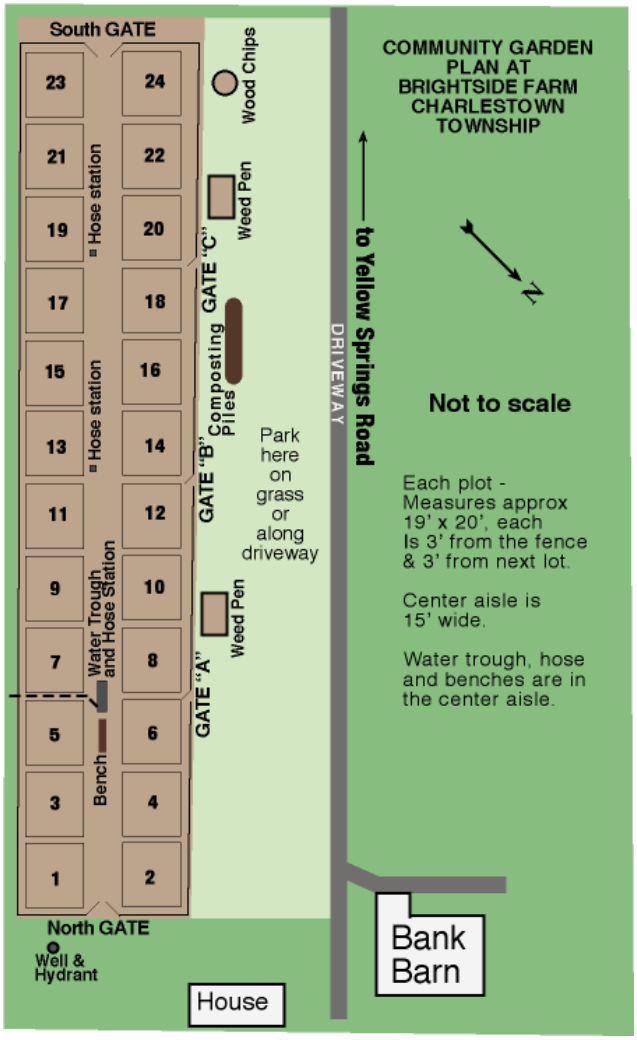
Once you have secured the site for the garden, try to set a time with the community members to discuss the use of the land. Have a site map ready to discuss where the garden bed or containers will be. Collect ideas about the types of crops community members want to grow and who will be most involved in the planting process.

One of the most important considerations when planting is to evaluate the temperature ranges of your region. The United States Department of Agriculture (USDA) developed a zone map based on the coldest temperature reached.



Once you have established your zone (for example Arlington, VA is in zone 7a) begin to gather a list of fruits and vegetables that grow well in your area. Turn to your state's Cooperative Extension for information about the different plant varieties available and if they are suitable for your garden. Extension offices can also help you test the quality of the soil where your garden will be. Soil tests are important to determine the pH of the soil and the organic content. The results of the test will provide recommendations for improving the soil, such as adding sand, compost or nutrients. If you are starting the garden in containers without soil, purchase a good quality mix at a local nursery.

The diagram below is an example layout of a community garden based in Charlestown Township, Pennsylvania.



Your garden area may not have as much space for the number or size of plots in this diagram. This is a good example of how to plan the space for plots and water in your garden. Use the space you have available in creative ways. Cooperative Extension agents can assist in planning and implementation of your garden and will have suggestions on how to best use the available space.

Barriers to a Community Garden

During the planning process it is important to consider any potential barriers. Not every site will be suitable for starting a garden and should be carefully considered.

Major barriers include:

- Unsuitable soil due to contamination,
- Lack of available space,

- Inaccessible water
- Insufficient number of people interested in the project,
- Neighborhood opposition,
- Sustained commitment,
- Maintenance and responsibility,
- Pest and vandalism.

Starting small in the beginning will help to avoid some of the above obstacles and will provide experience to find solutions to others. Think creatively on how to maximize water access and space. Remember that it may take some time for residents to become committed to the project and to see the true benefit of their hard work.

Growing the Garden

Plants grow the best in loose, well-drained soil. Raised beds or containers are the best ways to achieve good soil and to avoid the potential threat of contaminated soils so frequently found in urban areas. Raised beds should be 12 to 16 inches high.

Many materials can be used to create raised beds but retaining wall blocks and concrete blocks are recommended. These blocks can be found at any hardware store or can be recycled from a construction site. Concrete will not rot nor be easily displaced from the area so it is a good solution for a public area.

Take some time to measure your site and draw the site plan. Plan the sizes and shapes of your garden beds based on the width, length and accessibility.

Rectangular beds are typically used, but not necessary. A general rule of thumb is that beds should not measure more than 4 feet in width to allow gardeners to reach the middle of the bed. There is no maximum length for raised beds, but it is helpful to provide breaks for circulation. Provide a minimum of 3 feet between each garden bed so a wheel barrow can be maneuvered between the aisles. Use the land available in the best possible way and be creative to maximize growing spaces.

Fencing in the garden can protect the area from unwanted intruders – both animal and human. Fences provide protection from animal damage and minimize any human interference. It is also a good idea to have a locked gate and provide a key to various community members to establish hours of operation. It is not necessary to locate the

fence around the perimeter of the entire community garden and to integrate the fence into the design so that some spaces can still be enjoyed by visitors.

Of equal importance is a sign that documents the name of the garden, contact information, and defines expected behavior for the garden. The sign should clearly state the rules of the garden to minimize unauthorized harvesting of crops and vandalism.

The garden will require equipment and tools, and a safe space to store them. Consider purchasing hand pruners and clippers, hoes, hand forks, and garden trowels. Larger pieces of equipment such as garden carts, buckets, and watering cans may also be necessary. Be sure that there is a shed on site to store and look the tools.

Container Gardens

If your community does not have the space for a traditional in ground garden, large containers are a good alternative. The planting soil and drainage is still important. Look for containers that have drainage holes. The containers should allow for a depth of soil at a minimum of 12 inches. It is important that the containers are deep enough to hold water and to support root growth. Clay, wood, plastic, and metal are some of the suitable container materials.

Container gardens often require more water, so plan to place them in an area with direct sunlight and easy accessibility to a water source. Twice daily watering may be necessary. Apply water until it runs out the drainage holes. Container gardens are compact, easy to maintain, and can be moved around during various growing seasons.

A fairly lightweight potting mix is needed for container vegetable gardening. Packaged potting soil available at local garden centers is relatively lightweight and may make a good container medium.

Most vegetable and herb varieties will grow well in containers. Look for dwarf or bush varieties of plants that can grow well smaller areas. Vegetables that are ideally suited for growing in containers include tomatoes, peppers, eggplant, green onions, beans, lettuce, squash, radishes and parsley. Pole beans and cucumbers also do well in this type of garden, but they do require considerably more space because of their vining growth habit.

Vegetable	**Light Requirements**	**Minimum container size**
Bush Beans	Full Sun	2 gal. (16 to 18 inches deep)
Beets	Full to Partial Sun	1gal. (9 to 12 inches deep)

Cucumbers	Full Sun	5 gal. (16 to 18 inches deep)
Eggplant	Full Sun	5 gal. (14 to 16 inches deep)
Kale	Full to Partial Sun	5 gal. (9 to 12 inches deep)
Leaf Lettuce	Partial Sun	1 gal. (9 to 12 inches deep)
Green Onions	Full to Partial Sun	1 gal. (8 to 10 inches deep)
Bell Peppers	Full Sun	2 gal. (14 to 16 inches deep)
Summer Squash	Full Sun	5 gal. (16 to 18 inches deep)
Cherry Tomatoes	Full Sun	1 gal. (14 to 16 inches deep)

Larger containers are always best to encourage root growth. Be sure not to crowd plants and follow spacing instructions on seed packets or plant tags. Because of the variation in climate, it is best to contact your local Extension office to plan the appropriate containers and crops for your area. Extension Master Gardens can assist in recommending crop variations, watering schedules and location for containers.

Sustainable Practices

Although synthetic fertilizers create rapid growth in plants, there is evidence that plants grown organically have different nutrient levels. When plants are exposed to an excessive level of nutrients, as can happen when synthetic fertilizer is applied, they will allocate more to growth rather than to secondary metabolites. Secondary metabolites are molecules that are not necessary for growth, but enhance the plant's survivability. Antioxidants are a type of secondary metabolite and have been shown to have health benefits. A good alternative to synthetic fertilizers is compost.

Harvesting rainwater is another way to increase sustainability of the garden. Water can be collected in rain barrels from buildings or roofs. The amount of rain water needed depends upon the size of the garden. It is estimated that 1,000 square feet of garden space requires 600 gallons of water. A cubic foot of water is equal to 7.48 gallons, which is about .62 gallons per inch of rain. It is important to have potable water available during the dry months and for areas with low levels of rain. Drip irrigation is a good way to get water into the soil with minimal water loss.

Composting is another beneficial practice. Composting provides nutrients for the soil and makes good use of leaf litter, grass clippings and other easily decomposing matter that can collect in large amounts in parks. A composting bin can be purchased at most nurseries. Composting requires good air flow, so make sure your container can be perforated with holes. Turn-over is also important to add new oxygen and to encourage faster decomposition. Turn the material with a garden fork every two weeks.

Get Growing

Once your garden is in place, it's time to get planting. Start with a mix of crops that are easy to grow and are low maintenance to build the confidence of the community members. Refer back to the hardiness zone map and talk with a local master gardener about when to plant certain crops

Plant	**Notes**
Basil	Basil is easy to grow and can be harvested throughout the growing season.
Lettuce	Lettuce can grow in full sun to partial shade. It will grow best in spring and fall. Loose-leaf lettuce varieties grow in about three weeks.
Peas	Peas grow in about 50 to 60 days in mid-spring. Provide a medium-height trellis for the peas to climb.
Radishes	Radishes are fast-growing and are ready for harvest in about 30 days.
Spinach	Spinach grows in full sun to partial shade and can be planted in early spring.
Strawberries	Strawberries can be planted in small places and are very low maintenance.
Tomatoes	Tomatoes require little water and should be grown in full sun. Make sure to have some vertical support or a tomato cage.
Zucchini	Zucchini grows rapidly and can be harvested in about 70 days. Just be careful they do not take over the entire garden.

Using seeds is an economical way to grow fruits, vegetables and flowers. Using seeds cuts back on some of the up front costs to starting a garden, as they are less expensive than buying plants at a nursery. Seeds can be purchased in varying quantities and are often available through grants. Non-profits organizations like America the Beautiful Foundation and the American Community Gardens Association often provide seeds free of charge. You can start seeds in containers, cold frames or directly in beds depending upon your location.

Using pots and containers inside will protect seedlings from early frost. Paper cups, peat pots or plastic trays can all be used. Keep the seeds in a warm area near direct sunlight until seedlings mature and the weather permits transferring the plants outdoors.

A cold frame allows seedlings to be started outside before the growing season. Frames can be purchased or constructed out of wood and plastic sheeting. Positioning the cold frame in a southerly direction will maximize the warmth generated by the sun.
Pots and containers can also be used to start seeds. Peat pots or biodegradable paper cups can be planted once the soil is ready.

If you live in a location with a warm spring you can start seeds directly in the ground. Some type of water or irrigation system will be needed once the seeds are sown.

Controlling weeds in the garden is important because they compete with plants for nutrients and growing space. Weeds can also make it difficult to access the produce and can encourage unwanted pests. It's likely that the gardeners will have to do some hand pulling throughout the growing season. Weeds can be kept to a minimum by mulching around the area.

Using Gardens as a Beautification Project

Turning brown space into green space through a community garden provides an opportunity to plant flowers. Flowers make an attractive addition to the public areas as well as to the vegetable garden. When choosing flowers, it is important to choose those that need little water and will flower at different times throughout the year. Many plants grown for their flowers are also valuable companion plants in the vegetable garden that help to improve soil quality and keep pests away.

Lavender is a great flowering herb to use in gardens. It will reseed itself annually and can be dried to use in bouquets.

Sweet Alyssum is a ground cover that can be used with potatoes, broccoli, beans and corn.

Mint is a quick-growing herb that can be used in a number of recipes. It can spread quickly and should be kept in a container to contain its growth. Mint grows well beside tomatoes and cabbage.

Scented Marigold can be used in clusters around the garden. They will grow well with all types of crops and add color.

These plants will help attract beneficial pollinators that will promote growth of plants.

Managing the Garden

Creating a management plan is critical for the long-term success of the garden. Both people and resources are needed to sustain gardening projects. Involve the community members to discuss management needs. Who will be in charge of the garden? What will be the responsibilities of your organization? What will be the responsibilities of the

community members? How will communication occur? It is important to address the issues to set expectations for how the garden will be run.

Issues surrounding safety and training of new gardeners should be addressed. Policies should be drafted for accountability of all involved members. Management of the entire site, shared resources, and garden plots will also need to be addressed.

It is a good idea to establish regular garden work days for community members to help weed, plant seeds, and harvest the crops. This will help minimize any disputes and will keep the garden going. Use some of the work days to clean up the site and for new gardener trainings.

If residents have individual plots, like the Tancil Court gardens, make sure that they are aware of their responsibility to maintain their individual plots as well as any common areas for which all the gardeners will share responsibility. It is important that the gardeners come together to develop a set of rules that all agree to abide by. These might include deadlines for beginning spring maintenance, and ending fall cleanup, rules about the storage or care of equipment, and guidelines about access and security. The adoption of a means of enforcing the garden rules will be essential. A first step is to issue warning letters to residents to encourage them to return to their plot. If they are unresponsive, send a final letter explaining that they have lost the privilege of their land and that it will now be turned over to a different family. Keep a waiting list of interested individuals to fill open plots and roles.

If there is one, large community garden plot, such as Virginia Gardens, it is best to have a sign up sheet for each garden work day. Keeping a list will help to ensure that there are enough volunteers to help in the garden and to be sure that all interested residents are able to participate. Rotating between individuals will give everyone a chance to work in the garden and harvest crops.

Managing expectations is equally important. All new garden projects will face some obstacles in the first years. These opportunities are learning experiences and should not discourage community members. It is important to remember your garden's mission and to understand the ownership of the garden. Urban areas will not likely produce large amounts of produce. Do not be discouraged if certain crops are not growing well. It is important to maintain reasonable expectations and to encourage community members to keep up their hard work.

See Appendix I at the end of this manual for a management plan that will help you to create a safe and healthy garden.

Resources

Resources for Arlington

- Arlington Parks and Recreation (http://www.arlingtonva.us/departments/ParksRecreation/ParksRecreationMain.aspx)
- Fit Arlington (http://www.arlingtonva.us/portals/topics/FitArlingtonMain.aspx)
- Arlington Food Assistance Center (http://afac.org)
- Mulch (http://www.arlingtonva.us/departments/EnvironmentalServices/swd/EnvironmentalServicesSwdMulchOrders.aspx)
- Neighborhood Development (http://www.arlingtonva.us/portals/topics/TopicsNeighborhoods.aspx)

Resources for Virginia

- Virginia Cooperative Extension (http://ext.vt.edu)
- Virginia Department of Social Services, Food Assistance (http://www.dss.virginia.gov/benefit/food.html)
- Federation of Virginia Food Banks (http://vafoodbanks.org/)
- Virginia Department of Conservation and Recreation (http://www.dcr.virginia.gov/)
- Field to Fork Virginia (http://www.fieldtoforkva.org/)
- Virginia Food System Council (http://www.facebook.com/VirginiaFoodSystemCouncil)

National Resources

- Cooperative Extension (http://extension.org)
- American Community Garden Association (http://www.communitygarden.org)
- National Gardening Association (http://www.garden.org)
- The American Horticulture Society (http://www.ahs.org)
- America the Beautiful Foundation (http://www.america-the-beautiful.org)
- HUD Neighborhood Networks (http://www.neighborhoodnetworks.org)
- Community Development Block Grants (http://www.hud.gov/offices/cpd/communitydevelopment/programs/)
- Community Transformation Grants (http://www.cdc.gov/communitytransformation/)
- United States Federal Grants (http://www.grants.gov/)
- Centers for Disease Control and Prevention Healthy Communities Program (http://www.cdc.gov/healthycommunitiesprogram/communities/index.htm)

- Centers for Disease Control and Prevention ACHIEVE Communities (http://www.cdc.gov/healthycommunitiesprogram/communities/achieve/index.htm)
- Recommended Community Strategies and Measurements to Prevent Obesity in the United States (http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5807a1.htm)

Nutrition Curriculum

Nutrition education is an important component to helping residents improve their diets and general well-being. The gardens are an excellent way to try new produce and to expose families to healthy recipes. Providing seasonal recipes will show residents how to use the fruits and vegetables that they have worked hard to grow.

This manual has four unique sections. The first section is for facilitators and explains how to use the materials in this manual. Basic instructions are provided to assist the community members in the different lessons. The following three sections provide different types of nutrition education for low-income adults. The second section is based upon the 2010 Dietary Guidelines for Americans and describes how to balance calories and choose healthy foods from each food group. The third section provides helpful tips to prepare for grocery shopping. The fourth section contains information about produce that can be grown in gardens and accompanying recipes.

If there is a community center available, try having weekly or monthly meeting times to gather residents and try a new recipe. Involving residents in cooking will show them how to prepare foods in a healthy way and will give them the confidence to cook with new fruits or vegetables. Copies of the lessons and/or recipes can also be given to residents at different times of the harvest season to be used on their own.

Facilitators Guide – How much food?

This lesson is intended to help community members learn new ways to eat enough of the right kind of food, but not too much. Participants should recognize that a healthy lifestyle involves paying attention to what they eat and the portion size.

Learning Objectives – After the session participants will be able to:

- Identify the amount of calories they and their family members need.
- Identify and commit to at least one action to get the right amount of food from each food group.
- Identify and commit to at least one small dietary change (such as switching from whole milk to 1% milk).

Welcome participants and begin a discussion about family meals. Ask participants what they like to feed their family. Talk about how feeding a family can be enjoyable and it is something the whole family can become involved in. It is important to know how much of the right kind of food to eat. Many people do not know that each family member may need different amounts of food depending on their age, activity level and gender.

Ask participants how knowing how much food to eat each day could help their families. Point out that children need the right amount of food from all of the food groups to grow strong and healthy. Also explain that eating too much of one food could cause us to not eat a balanced diet and can lead to weight gain.

Hand out the worksheets "How much food?" and "How many calories?" (found in this manual) to each participant. Have each participant identify the number of calories they and their family members should eat each day. Point out that their children may need to eat less.

Go through the MyPlate picture and explain the importance of a balanced diet. Explain that half of their plate should be composed of fruits and vegetables. Ask participants if this is what their meals currently look like.

Go through the tips on "How much food?" to identify small changes that everyone can do to eat a healthier diet. Ask participants to discuss what they already do and what they could change.

Wrap up the discussion by explaining that balancing food choices can be made from making small changes, use examples from what participants discussed.

If there is an available kitchen space, try making one of the seasonal recipes to show participants how to use the fruits and vegetables growing in the garden.

How much food?

The average adult needs about 2,000 calories of food a day. It is important to eat foods from all of the food groups each day, and MyPlate shows us what types of food and how much to eat from the five food groups. It is important to remember some key points:

- Avoid oversized portions
- Make half your plate vegetables and fruits
- Drink water instead of sugary drinks like juice-drinks or soda.

Making food choices for a healthy lifestyle can be as simple as using these 10 Tips. Use the ideas in this list to balance your calories, to choose foods to eat more often, and to cut back on foods to eat less often.

Balance calories - Find out how many calories YOU need for a day as a first step in managing your weight. Go to www.ChooseMyPlate.gov to find your calorie level. Being physically active also helps you balance calories.

Enjoy your food but eat less - Take the time to fully enjoy your food as you eat it. Eating too fast or when your attention is elsewhere may lead to eating too many calories. Pay attention to hunger and fullness cues before, during, and after meals. Use them to recognize when to eat and when you've had enough.

Avoid oversized portions - Use a smaller plate, bowl, and glass. Portion out foods before you eat. When eating out, choose a smaller size option, share a dish, or take home part of your meal.

Foods to eat more often - Eat more vegetables, fruits, whole grains, and fat-free or 1% milk and dairy products. These foods have the nutrients you need for health including potassium, calcium, vitamin D, and fiber. Make them the basis for meals and snacks.

Make half your plate fruits and vegetables - Choose red, orange, and dark-green vegetables like tomatoes, sweet potatoes, and broccoli, along with other vegetables for your meals. Add fruit to meals as part of main or side dishes or as dessert.

Switch to fat-free or low-fat (1%) milk -It has the same amount of calcium and other essential nutrients as whole milk, but fewer calories and less saturated fat.

Make half your grains whole grains - To eat more whole grains, substitute a whole-grain product for a refined product—such as eating whole-wheat bread instead of white bread or brown rice instead of white rice.

Foods to eat less often - Cut back on foods high in solid fats, added sugars, and salt. They include cakes, cookies, ice cream, candies, sweetened drinks, pizza, and fatty meats like ribs, sausages, bacon, and hot dogs. Use these foods as occasional treats, not everyday foods.

Compare sodium in foods - Use the Nutrition Facts label to choose lower sodium versions of foods like soup, bread, and frozen meals. Select canned foods labeled "low sodium," "reduced sodium," or "no salt added."

Drink water instead of sugary drinks - Cut calories by drinking water or unsweetened beverages. Soda, energy drinks, and sports drinks are a major source of added sugar, and calories, in American diets.

How many calories?

It is important to maintain a balance of calories eaten each day and physical activity. Each person has different calorie requirements based on their gender, age and physical activity levels. Most people need around 2000 calories per day, but some will need less and others will need more. The chart below can help you to determine how many calories you and your family members should consume each day.

Gender	Age (years)	Little Activity	Moderate Activity	Very Active
Males	2-3	1000-1200	1000-14000	1000-14000
	4-8	1200-1400	1400-1600	1600-2000
	9-13	1600-2000	1800-2200	2000-2600
	14-18	2000-2400	2400-2800	2800-3200
	19-30	2400-2600	2600-2800	3000
	31-50	2200-2400	2400-2600	2800-3000
	51+	2000-2200	2200-2400	2400-2800
Females	2-3	1000-1200	1000-14000	1000-14000
	4-8	1200-1400	1400-1600	1400-1800
	9-13	1400-1600	1600-2000	1800-2200
	14-18	1800	2000	2400
	19-30	1800-2000	2000-2200	2400
	31-50	1800	2000	2200
	51+	1600	1800	2000-2200

Calories per day based on Estimated Energy Requirements
(Dietary Guidelines for Americans, 2010)

To manage body weight, Americans should eat a diet that is balanced in the total number of calories and that contains the right amount of important macronutrients. Macronutrients are carbohydrates, proteins and fats. Both carbohydrates and proteins provide 4 calories per gram, while fat provides 9 calories per gram. All of the macronutrients are important for a balanced diet. The table below shows the percentage of calories that should come from each macronutrient. This can help you to plan meals throughout the day for you and your family members.

	Carbohydrate	Protein	Fat
Children 1-3 years	45-65%	5-20%	30-40%
Older children and adolescents 4-18 years	45-65%	10-30%	25-35%
Adults 19+ years	45-65%	10-35%	20-35%

Recommended Macronutrient Proportions by Age
(Dietary Guidelines for Americans, 2010)

This sample 3-day menu shows how to create a balanced diet throughout the entire day.

Day 1	Day 2	Day 3
Breakfast Creamy oatmeal (cooked in milk): *½ cup uncooked oatmeal* *1 cup fat-free milk* *2 Tbsp raisins* *2 tsp brown sugar* Beverage: 1 cup orange juice	Breakfast Breakfast burrito: *1 flour tortilla (8" diameter)* *1 scrambled egg* a cup black beans* *2 Tbsp salsa* ½ large grapefruit Beverage: 1 cup water, coffee, or tea	Breakfast Cold cereal: *1 cup ready-to-eat oat cereal* *1 medium banana* *½ cup fat-free milk* 1 slice whole wheat toast *1 tsp tub margarine* Beverage: 1 cup prune juice
Lunch Taco salad: *2 ounces tortilla chips* *2 ounces cooked ground turkey* *2 tsp corn/canola oil (to cook turkey)* *¼ cup kidney beans** *½ ounce low-fat cheddar cheese* *½ cup chopped lettuce* *½ cup avocado* *1 tsp lime juice (on avocado)* *2 Tbsp salsa* Beverage: 1 cup water, coffee, or tea	Lunch Roast beef sandwich: *1 small whole grain hoagie bun* 2 ounces lean roast beef *1 slice part-skim mozzarella cheese* *2 slices tomato* *¼ cup mushrooms* *1 tsp corn/canola oil (to cook mushrooms)* *1 tsp mustard* Baked potato wedges: *1 cup potato wedges* *1 tsp corn/canola oil (to cook potato)* *1 Tbsp ketchup* Beverage: 1 cup fat-free milk	Lunch Tuna salad sandwich: *2 slices rye bread* *2 ounces tuna* *1 Tbsp mayonnaise* *1 Tbsp chopped celery* *½ cup shredded lettuce* 1 medium peach Beverage: 1 cup fat-free milk
Dinner Spinach lasagna roll-ups: *1 cup lasagna noodles(2 oz dry)* *½ cup cooked spinach* *½ cup ricotta cheese* *1 ounce part-skim mozzarella cheese* *½ cup tomato sauce** 1 ounce whole wheat roll *1 tsp tub margarine* Beverage: 1 cup fat-free milk	Dinner Baked salmon on beet greens: *4 ounce salmon filet* *1 tsp olive oil* *2 tsp lemon juice* a cup cooked beet greens *(sauteed in 2 tsp corn/canola oil)* Quinoa with almonds: *½ cup quinoa* *½ ounce slivered almonds* Beverage: 1 cup fat-free milk	Dinner Roasted chicken: *3 ounces cooked chicken breast* 1 large sweet potato, roasted ½ cup succotash (limas & corn) *1 tsp tub margarine* 1 ounce whole wheat roll *1 tsp tub margarine* Beverage: 1 cup water, coffee, or tea
Snack 2 Tbsp raisins 1 ounce unsalted almonds	Snack 1 cup cantaloupe balls	Snack ¼ cup dried apricots 1 cup flavored yogurt

For more ideas to plan a weekly menu go to www.choosemyplate.gov.

Facilitators Guide – How much physical activity?

This lesson is intended to show community members how to incorporate physical activity into their daily routines. Participants should recognize that a healthy lifestyle involves both a healthy diet and regular physical activity.

Learning Objectives – After this session participants will be able to:

- Identify how much physical activity they and their family members should participate in each week.
- Identify the health benefits of regular physical activity.
- Identify and commit to at least one action to add more physical activity into their week.

Welcome participants and begin a discussion about what activities they do with their families. Talk about how physical activity does not need to be strenuous and can involve fun activities for parents and kids. It is important to know how much physical activity a person needs for a healthy and happy life.

Hand out the worksheet "How much exercise?" to each participant. Have each participant identify the amount of physical activity they and their family member should be participating in. Talk about why children might need more physical activity. Ask any parents if their children have gym classes at school or if they play any sports. Have participants discuss what kind of physical activity they do. Does anyone walk or bike to work? Does anyone take walks with their kids or dog?

Go through the tips on "How much exercise?" to identify small changes that everyone can do to increase their physical activity levels. Ask participants what they can do to become more active.

Wrap up the discussion by explaining that a healthy life involves both a balanced diet and regular physical activity. Use examples from what participants said they will do to be more active.

If there is an available kitchen space, try making one of the seasonal recipes to show participants how to use the fruits and vegetables growing in the garden.

How much physical activity?

Physical activity simply means movement of the body that uses energy. Walking, gardening, briskly pushing a baby stroller, climbing the stairs or playing soccer, are all good examples of being active. For health benefits, physical activity should be moderate intensity.

Children need at least 60 minutes of physical activity every day or most days of the week.

Adults need at least 30 minutes of moderate physical activity every day. Being active 5 or more hours each week has even more health benefits.

Moderate physical activities include:

- Walking
- Bicycling
- Gardening (raking, trimming shrubs)
- Dancing
- Golf (walking and carrying clubs)
- Tennis

Regular physical activity can produce long term health benefits. People of all ages, shapes, sizes, and abilities can benefit from being physically active. The more physical activity you do, the greater the health benefits. Physical activity and nutrition work together for better health. Being active increases the amount of calories burned.

Being physically active can help you:

- Increase your chances of living longer
- Sleep well at night
- Move around more easily
- Have stronger muscles and bones
- Stay at or get to a healthy weight
- Be with friends or meet new people

When you are not physically active, you are more likely to:

- Be at risk for heart disease
- Get type 2 diabetes
- Have high blood pressure
- Have high blood cholesterol
- Have a stroke

Choose activities that you enjoy and can do regularly. Fitting activity into a daily routine can be easy, such as taking a brisk 10 minute walk to and from the parking lot, bus stop, or subway station. Every little bit adds up and doing something is better than doing nothing.

More ways to increase physical activity

At home:

- Join a walking group in the neighborhood or at the local shopping mall.
- Get the whole family involved — enjoy an afternoon bike ride with your kids.
- Walk the dog; don't just watch the dog walk.
- Mow the lawn with a push mower.
- Plant and care for a vegetable or flower garden.

At work:

- Get off the bus or subway one stop early and walk the rest of the way.
- Replace a coffee break with a brisk 10-minute walk. Ask a friend to go with you.
- Take the stairs, not the elevator.
- Take part in an exercise program at work or a nearby gym.

At play:

- Walk, jog, skate, or cycle.
- Swim or do water aerobics.
- Take a class in martial arts, dance, or yoga.
- Play racket ball, tennis, or squash.
- Play basketball, softball, or soccer.
- Take a nature walk.

Most important – have fun while being active!

Facilitator's Guide – Grocery shopping tips

This lesson is designed to help busy community members plan meals to save money and make smart choices at the grocery store. Participants should develop skills to create organized grocery lists and to plan their meals ahead.

Bring copies of the worksheet "Grocery shopping tips" as well as pencils for each participant.

Learning Objectives – After the session participants will be able to:

- Identify and use at least two tips to save money at the grocery store.
- Identify multiple uses for food, such as use in different meals or leftovers.
- Create a weekly grocery list.

Welcome participants and begin a discussion about how participants decide what to make for dinner. Ask participants what their family's favorite meals are.

Then transition into asking participants what they do to plan meals. Do they think about what to make for dinner each week?

Hand out the worksheet "Grocery shopping tips" and a pencil to each participant. Explain that by making a weekly shopping list, families can save money at the grocery store and make planning meals easier. Go through some of the planning tips with participants and ask if there are any methods they already use. What could they do differently to plan out their meals?

Ask participants to look at the sample grocery list and talk about how they could use it. How might it help them save time and money?

Wrap up the discussion by asking the participants how they can better plan their meals and grocery shopping trips.

If there is an available kitchen space, try making one of the seasonal recipes to show participants how to use the fruits and vegetables growing in the garden.

Grocery Shopping Tips

Planning ahead before going to the grocery store will help you stay organized and save money.

Create a weekly meal plan. Check the ingredients you have in your cupboard, refrigerator or freezer. Choose a main dish then add foods from other groups. Think of creative ways to use one ingredient in several meals or how to use leftovers. Make a shopping list to help you remember what items you need to buy.

Try filling out the shopping list on the next page or creating one of your own.

Before you shop:

- Know how much money is in your food budget.
- Check what ingredients you have in your cupboards, freezer and refrigerator.
- Clip coupons and look for store specials.
- Make a shopping list.
- Have a healthy snack before shopping so you aren't hungry in the store.

While you shop:

- Buy store brands when they are cheaper than name brands.
- Modify your shopping list when items are on sale.
- Buy in bulk when the price per unit is good and you have storage.
- Look for large pieces of meat that can be divided into smaller freezer bags for future meals.
- Watch out for products at eye level that may cost more and be less nutritious.

After you shop:

- Avoid throwing out food by mixing leftover foods in stews, casseroles or stir-fry dishes.
- Pack leftover food for lunches or snacks.
- Freeze food you won't use right away so it doesn't go bad.

Food Needed	Amount	Sale/ Coupon
Fresh Produce		
Meat/Poultry/Fish		
Dairy/Eggs		
Frozen Foods		
Bread		
Cereal		
Pasta/Rice		
Canned Foods		

Snacks/Juice		
Supplies		

Facilitator's Guide – Reading the Nutrition Facts Label

This lesson is designed to help busy community members learn to make smart food choices by reading the Nutrition Facts Label and comparing different food items. It would be helpful to bring some packaged food items, such as two different cans of chicken noodle soup (one regular and one low fat/low sodium).

Learning Objectives – After the session participants will be able to:

- Identify the different sections of the Nutrition Facts Label
- Identify how to select a food that has high nutritional value
- Identify how to use the Nutrition Facts Label while grocery shopping

Welcome participants and begin a discussion about what types of packaged foods they buy for their families.

Then transition into asking participants if they know what the Nutrition Facts Label is.

Hand out the worksheet "Grocery shopping tips" to each participant. Show them what the nutrition facts label looks like on the cans of soup. Ask participants if anyone uses this label to help make healthy food choices.

Have participants go through the worksheet and talk about each section on the label. Ask them why it is important to identify how many servings are in the package. Why is it important to understand how many calories and grams of fat are in a serving? Have participants identify what to limit (fat, sodium, cholesterol) and what to eat enough of (nutrients like fiber and vitamins).

Have the participants discuss the difference between the two cans of soup. Which item do they think is the better choice and why?

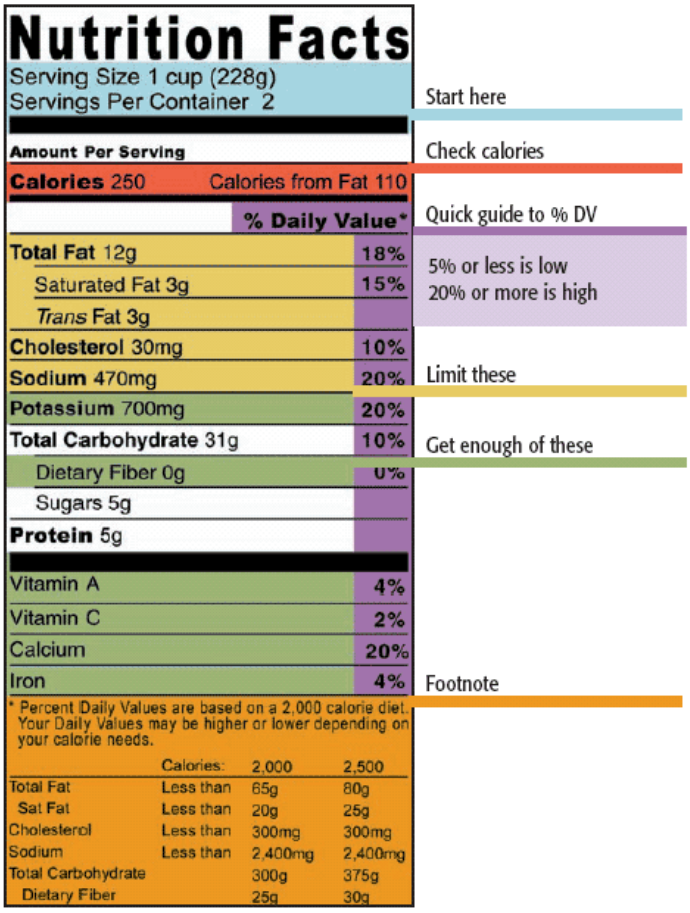
Wrap up the discussion by asking the participants how they can use the Nutrition Facts Label to purchase healthier foods.

If there is an available kitchen space, try making one of the seasonal recipes to show participants how to use the fruits and vegetables growing in the garden.

Reading the Nutrition Facts Label

The Nutrition Facts label provides detailed information about the nutrient content packaged food and beverage items. The label is designed to help you make healthier choices. You can read the Nutrition Facts label to determine the amounts of such nutrients as fat, sodium and fiber in a food. Understanding this information can help you decide whether a food or beverage fits in to your eating plan. It also helps you to compare similar products to see which one might be a healthier choice.

The more practice you get reading food labels, the better you can become in using it as a tool to plan your healthy, balanced diet.



The first place to look is for the serving size and servings per container (in blue). Then ask yourself "How many servings do I eat?" If you eat two cups of the food, it would be the entire package and twice the calories listed on the Nutrition Facts Label.

It is important to check the calories and the calories from fat (in red). The general guide is that 40-100 calories is low, 100-400 calories is moderate and more than 400 calories is high.

Next, look at the fat, cholesterol and sodium content (in yellow). These are nutrients to limit. It is important to avoid foods that are high in saturated fat and trans fat.

Then look at the amount of fiber and vitamins the food contains (green). It is important to eat enough of these nutrients.

The percent Daily Values are based on the Daily Value recommendations for key nutrients based on a 2000 calories diet (in purple). The %DV helps you to determine if a food is high or low in certain nutrients. 5%DV or less is low and 20%DV or more is high. Looks for foods that have a low %DV in fat, sodium, saturated fat and cholesterol.

The footnote contains information about a 2000 calorie diet that is required to be on all packaged food items (in orange). The amounts listed are the percent daily values, or the recommended levels of intake, for certain nutrients.

Facilitators Guide – Food group lessons

This manual provides a lesson on each food group – vegetables, fruit, grains, protein and dairy – and one lesson on how to reduce fat. Each lesson is designed to show community members how much of each food group they should eat and different sources of food. These lessons are best when combined with a cooking session and recipes in this manual can be incorporated. Lessons could also be combined, such as talking about vegetables and fruits together.

Learning Objectives – After each session participants will be able to:

- Identify the amount (in servings) of each food group they should eat.
- Identify appropriate portion sizes for each food group.
- Identify and commit to trying a new type of food for each food group (such as a new vegetable, using tofu for protein, eating yogurt for breakfast, etc).

Welcome the participants and begin by asking them to list their favorite types of the food group being discussed. Then ask them how many servings of that food group they should eat each day. What does a serving size look like?

Begin discussing what a serving size looks like. For vegetables, fruits and dairy it is a cup so show the participants a 1 cup measuring cup. For grains it is ounces, show participants one piece of sandwich bread and explain that is an ounce. Protein is also in ounces, an egg can represent one ounce.

Then ask participants how many servings per day they should eat of the food group. Hand out the accompanying fact sheet on the food group. Discuss servings and portion sizes. Do they eat too much or too little of the food group? What are ways they could try to change their diets to eat more balanced meals?

Ask participants to identify a type of food they have not tried before. It could be a type of vegetable, like spinach, or protein, like tofu. Ask participants what tips they could try using in their families' meals.

Wrap up the discussion by reminding participants that it is important to eat a balanced diet and to be mindful of portion sizes.

If there is an available kitchen space, try making one of the seasonal recipes to show participants how to use the fruits and vegetables growing in the garden.

Vary Your Veggies

Vegetables of different colors provide different vitamins and minerals. Serving many different colors of vegetables will help your family get the nutrition they need. The garden is a good place to try new vegetables. Try serving different vegetables like:

Dark greens – broccoli, spinach and collard greens
Orange – carrots and sweet potatoes
Starchy – corn, peas and white potatoes
Others – tomatoes, green beans, cabbage, zucchini and lettuce

Most people need about 3 cups of vegetables a day (go to www.choosemyplate.gov to determine the amount that is right for you). It is important to understand portion sizes. For one day a person might eat:

- One half cup of cooked green beans (counts as ½ cup)
- One cup of raw lettuce or spinach (counts as ½ cup)
- One half cup of raw tomatoes (counts as ½ cup)
- One large baked sweet potato (counts as 1 cup)

Try mixing vegetables with other foods your family likes. Add chopped broccoli to macaroni and cheese, or add chopped veggies into eggs for a flavorful omelet.

Add lettuce, spinach, tomato or shredded carrots to sandwiches and wraps.

Chop up leftover vegetables and add to a quesadilla. Or try topping a pizza with your favorite vegetables.

Add carrots, zucchini and potatoes into meatloaf or soup recipes.

Keeping sliced vegetables like cucumbers, carrots, celery and broccoli are good snacks for kids. Offer dips like low-fat ranch and peanut butter with the vegetables.

Vegetables can be cooked a lot of ways.

- Microwave chopped vegetables in a microwave-safe dish with a lid for 4-6 minutes. Adding a small amount of water will help the vegetables steam.
- Use the stove top to simmer vegetables in one inch of water until they are tender.
- Bake vegetables in the oven at 350 F for about 20 minutes or until they begin to brown at the edges.

Focus on Fruit

Eat a variety of fruits ever day. Fruits add important vitamins, minerals and fiber to meals and snacks. Making fruits an easy choice will help your family eat more fruit each day. Keep a bowl of fruit on the kitchen table or counter. Cut up fruit and keep it in the refrigerator for an easy snack.

Most people should eat 2 cups of fruit a day (go to www.choosemyplate.gov to determine the amount that is right for you). 1 cup of fruit or 100% fruit juice, or ½ cup of dried fruit counts as 1 cup from the Fruit Group. For one day you might eat:

- One quarter cup of dried fruit (counts as ½ cup)
- One banana (counts as 1 cup)
- One small orange (counts as ½ cup)

Adding in more fruits to your family's meals can be easy.

At breakfast, top your cereal with bananas or peaches. Make a fruit smoothie by blending fat-free or low-fat milk or yogurt with fresh or frozen fruit. Try bananas, peaches, strawberries, or other berries.

Try meat dishes that incorporate fruit, such as chicken with apricots or mangoes. Add fruit like pineapple or peaches to kabobs as part of a barbecue meal.

For dessert, have baked apples, pears, or a fruit salad.

Spread peanut butter on apple slices for a healthy snack.

For fresh fruit salads, mix apples, bananas, or pears with acidic fruits like oranges, pineapple, or lemon juice to keep them from turning brown.

If your garden isn't growing any fruits, purchase fresh fruits that are in season. This will be less expensive and taste better.

Summer (June – August): Apricots, bananas, blueberries, cantaloupe, cherries, mangoes, peaches, pears, plums, watermelon
Fall (September – November): Apples, bananas, cranberries, melons, grapes
Winter (December – February): Apples, bananas, grapefruit, mangoes, oranges, pears, tangerines
Spring (March – May): Bananas, papaya, pears, pineapple, strawberries, tangerines

Make Half Your Grains Whole

Eating grains, especially whole grains, provides health benefits. Grains provide many nutrients that are important for our bodies. Eating whole grains helps with weight management and may help lower cholesterol.

Most people need 6 ounces of grains each day (go to www.choosemyplate.gov to determine the amount that is right for you). For one day you might eat:

- One cup of whole-grain cereal (counts as 1 ounce)
- Two slices of whole-wheat bread (counts as 2 ounces)
- One cup of cooked rice (counts as 2 ounces)
- One small piece of corn bread (counts as 1 ounce)

At least half (3 servings) should be whole grains each day. Look for "100% whole grain" or "100% whole wheat" on food labels.

Whole grains are important because they contain fiber. Fiber is important for a regular digestive system, and eating high-fiber foods can help lower your risk for hear disease. Women need 21-25 grams of fiber a day and men need 25-35 grams of fiber a day.

For a change, try brown rice or whole-wheat pasta. Try brown rice stuffing in baked green peppers or tomatoes and whole-wheat macaroni in macaroni and cheese.

Use whole grains in mixed dishes, such as barley in vegetable soup or stews.

Experiment by substituting whole wheat or oat flour for up to half of the flour in pancake, waffle or muffin recipes.

Use whole-grain bread or cracker crumbs in meatloaf.

Popcorn, a whole grain, can be a healthy snack if made with little or no added salt and butter.

Go Lean with Protein

Meats, beans, eggs, nuts, and seeds give us protein every day. Proteins are the building blocks for strong bones and muscles. It is important to choose sources of meat that are low in saturated fats. Saturated fats raise "bad" cholesterol - low density lipoprotein (LDL)- levels in the blood. Some food choices in this group are high in saturated fat. These include fatty cuts of beef, pork, and lamb; regular (75% to 85% lean) ground beef; regular sausages, hot dogs, and bacon. To help keep blood cholesterol levels healthy, limit the amount of these foods you eat.

Most people need 5-6 ounces of protein-rich foods per day (go to www.choosemyplate.gov to determine the amount that is right for you). For one day you might eat:

- One whole egg (counts as one ounce)
- One half cup of cooked black beans (counts as two ounces)
- One half of a small chicken breast (counts as two to three ounces)

Meat eaters should choose seafood at least twice a week as the main protein food. Look for seafood rich in omega-3 fatty acids, such as salmon, trout, and herring. Vegetarians can get protein from plant-based sources, like beans and peas, nuts, and soy products (such as tofu, tempeh). Lacto-ovo vegetarians also get protein from eggs and dairy foods.

Choose beans, peas, or soy products as a main dish or part of a meal. Some choices are:

- Chili with kidney or pinto beans
- Stir- fried tofu
- Baked beans
- Black bean enchiladas
- Garbanzo or kidney beans on a chef's salad

You can add protein to your children's snacks by serving one tablespoon of peanut butter on crackers or with sliced vegetables.

Remember these tips when purchasing meats:

- The leanest beef cuts include round steaks and roasts (eye of round, top round, bottom round, round tip), top loin, top sirloin, and chuck shoulder.
- The leanest pork choices include pork loin, tenderloin, center loin, and ham.
- Choose extra lean ground beef. The label should say at least "90% lean."
- Buy skinless chicken parts, or take off the skin before cooking.
- Choose lean turkey, roast beef, ham, or low-fat luncheon meats for sandwiches.

Get Your Calcium-Rich Foods

Eating dairy products provides important nutrients for bone health. These nutrients include calcium, potassium, vitamin D and protein. All fluid milk products and many foods made from milk are considered part of this food group. Most Dairy Group choices should be fat-free or low-fat.

Most people need 3 cups of milk or milk products each day (go to www.choosemyplate.gov to determine the amount that is right for you). For one day you might:

- Put 1 cup of fat-free or low-fat milk on cereal (counts as 1 cup)
- Eat 1 cup of low-fat yogurt (counts as 1 cup)
- Eat 2 ounces of low-fat cheese (counts as 1 cup)

If you usually drink whole milk, switch gradually to fat-free milk, to lower saturated fat and calories. Try reduced fat (2%), then low-fat (1%), and finally fat-free (skim).

Add fat-free or low-fat milk instead of water to oatmeal and hot cereals.

Make a dip for fruits or vegetables from yogurt.

Make fruit-yogurt smoothies in the blender.

For dessert, make chocolate or butterscotch pudding with fat-free or low-fat milk.

Top casseroles, soups, stews, or vegetables with shredded reduced-fat or low-fat cheese.

Top a baked potato with fat-free or low-fat sour cream.

Some people are lactose intolerant, which means that they cannot digest foods with lactose in them. Lactose is the sugar found in milk and foods made with milk. Look for lactose-free milk and milk products in your grocery store.

Ideas to Reduce Fat

Save calories and fat by choosing low-fat or fat-free foods. Making easy substitutions while cooking meals will also reduce the fat in your favorite recipes.

When the recipe calls for:	**Try this:**
Melted butter (1 tablespoon)	¾ tablespoon canola oil
Cheese (1 cup)	1 cup low-fat cheese
Egg (1)	2 egg whites or ¼ cup of egg substitute
Heavy cream (1 cup)	1 cup evaporated skim milk
Mayonnaise (1 cup)	1 cup low-fat sour cream *or* 1 cup plain low-fat yogurt
Oils or shortening	Applesauce for half of the amount of oil in baking

Most people should limit added fats and oils to 5 to 6 tablespoons per day. Some Americans consume enough oil in the foods they eat, such as: nuts, fish, cooking oil and salad dressings.

Foods that are mainly oil include mayonnaise, salad dressings, and soft (tub or squeeze) margarine with no trans fats. Check the Nutrition Facts label to find margarines with 0 grams of trans fat.

Solid fats are fats that are solid at room temperature, like butter and shortening. Solid fats come from many animal foods and can be made from vegetable oils.

Using the recipes

This manual contains a number of different recipes to use produce that is commonly grown in community gardens. The garden in your community may contain different vegetables and fruits, so use the recipes that are right for your garden.

Each recipe section contains basic nutrition information about the type of produce as well as harvesting tips. Activities could be designed to have community members harvest the type of vegetable or fruit and then try making one of the recipes if a community center with kitchen is available. The tips and recipes could also be handed out during the garden work days.

Different types of cooking activities could include:

- Incorporating a recipe into the nutrition classes
- Having a separate cooking time in the community center
- Having a community picnic where members use the produce in the garden.

Salad Greens

- California produces approximately 81% of the leaf lettuce grown in the U.S.
- Romaine is the dominant leaf lettuce cultivar in California with approximately 64% of production followed by green leaf - 21%, red leaf - 10%, and butterhead - 5%
- Lettuce, a member of the sunflower family, is one of the oldest known vegetables and is believed to be native to the Mediterranean area. In the United States lettuce ranks second only to potatoes as the most popular vegetable.
- There are four main types of lettuce: head lettuce, romaine, loose leaf and butterhead.
- Cabbage is available in many varieties: red or purple, Napa cabbage, Bok choi and Brussels sprouts.

Nutritional Facts:

- There are a number of different kinds of leafy salad greens, but as a rule, darker green leaves contain more nutrients.
- 2 cups of raw Green Leaf lettuce provides more than 100% of the recommended Daily Value (DV) for Vitamin A, and more than 150% of the DV for Vitamin K. It is also an excellent source of Vitamin C (22% DV).
- 2 cups of raw Spinach provides more than 100% of the DV for Vitamin A and almost 4 times the DV for Vitamin K. Spinach is also an excellent source for folate (30% DV), Vitamin C (28% DV), and manganese (26% DV). Further, Spinach is a good source of iron, magnesium, and potassium.
- 1 cup of raw, shredded cabbage is an excellent source of Vitamin C and K. Cabbage is also a good source of Vitamin A.
- It is important to eat a rainbow of colors to get a good variety of vitamins and minerals. Choosing red, green, and purple leafy greens is a wonderful, healthy way to do this.

Harvesting Lettuce

Romaine lettuce is ready to harvest when the leaves have elongated and overlapped to form a fairly tight head about 4 inches wide at the base and 6-8 inches tall. If leafy salad greens are to be stored, harvest when dry but early in the day when water content of plants is high.

When harvesting, either remove the entire plant or when leaves are 3 to 4 inches high, cut them off without harming the crown of the plant (leave 1 to 2 inches of the plant).

Remove outer leaves but do not wash. Place in a plastic bag and store in the crisper drawer. Most salad greens will keep for about 2 weeks.

Lettuce Roll-Up

- 1 head of Romaine Lettuce or other leafy green
- 1 medium carrots
- 1 medium apples, any kind
- 1 small heads of broccoli (about 2 cups)
- 1 stalks of celery
- 1/4 cup roasted pumpkin seeds, lightly salted

Dressing:

- ¾ cup plain yogurt
- 2.5 tablespoons orange juice
- 3.5 teaspoons white vinegar

Directions:
1. Remove leaves from the head of lettuce. Wash & dry. Set leaves aside.
2. Wash the carrot, grate it and add it to a bowl.
3. Wash the apple, slice it and add it to the bowl.
4. Wash the broccoli, chop it into bite sized florets and add it to the bowl.
5. Wash the celery, slice it and add it to the bowl.
6. Measure the pumpkin seeds and add them to the bowl.
7. Gently toss the salad together.
8. Wisk together dressing ingredients in a separate bowl.
9. Add dressing to salad.
10. Take each lettuce leaf and spoon a small amount of the filling into the end.
11. Roll the filling into the lettuce leaf, as if you were making a burrito. Fold two sides together like a book, and then roll the leaf away from you.

Makes 5 1-cup servings.

Nutrition information per 1 cup serving: 124 calories, 8g fat, 1g saturated fat, 13g carbohydrate, 4g fiber, 4g protein, 7g sugar, 52mg sodium

Rainbow Coleslaw

- 1 cup thinly sliced red cabbage
- 1 cups thinly sliced green cabbage
- 1/4 cup chopped yellow or red bell pepper
- 1/4 cup shredded carrots
- 1/4 cup chopped red onion
- 1/4 cup fat free mayonnaise
- 1/2 tablespoon red wine vinegar
- 1/4 teaspoon celery seed (optional)
- 1/4 cup low fat Cheddar cheese, shredded

Directions:
1. Wash and dry all vegetables.
2. In a large bowl, combine all the vegetables.
3. In a small bowl, mix mayonnaise, vinegar, and celery seed (if desired) to make a dressing.
4. Pour the dressing over the vegetable mixture and toss until well coated.
5. Toss salad with cheese and served chilled.

Makes 6 ½-cup servings.

Nutrition information per ½ cup serving: 30 calories, 1g fat, 0g saturated fat, 4g carbohydrate, 1g fiber, 2g protein, 145mg sodium

Spring Peas

- Peas are a cool season vegetable, and do best in a climate where there are two months of cool growing weather.
- Dried peas were among the essentials needed by people preparing to sail to the American colonies. They were nutritious, would keep indefinitely and required little storage space on the ship. When English colonists arrived in America, peas were one of the first crops to be planted.
- The two main types of peas are bush and vine. Bush types grow in most area of California; vine types do best when planted along the coast.
- Different types of peas include wrinkled peas, smooth types, yellow peas, black-eyed peas, crowder peas, cream peas, bushing and climbing varieties, snow peas and snap peas.
- Snow peas and sugar snap peas are actually two different types of peas. Snow peas have flat pods with small, undeveloped flat peas. Sugar snaps, which are plump with fully developed peas and edible pods, are a cross between English peas and snow peas.

Nutrition Facts:

- Peas are a legume. Legumes are plants that produce pods with edible, fleshy seeds.
- Legumes are protein-rich, low fat, nutritional additions to almost any meal, and peas are certainly no exception. In fact only lima beans are a better vegetable source of protein than peas.
- Approximately 2 1/2 cups of chopped, raw sugar snap peas contains 8 grams of protein. This a little more protein than 1 egg or a tablespoon of peanut butter.
- Peas take so well to freezing that only about 5 percent of the nation's pea crop are sold fresh.
- Most of the pea crop is sold canned, frozen, and to a lesser degree, dried. Frozen peas retain their color, flavor and texture much better than canned peas.

Harvesting Peas

Garden/Shelling peas should be picked when the pods swell and you can discern the peas inside, and they feel firm. Experiment a bit at first. Don’t wait too long to pick or they will be starchy.

Snap peas should be picked earlier, when the pods have started to swell, but the peas inside are smaller. If you wait too long to harvest, the pods will get stringy and unpleasant to eat and you’ll have to shell them just like garden peas. Pick snap peas every couple of days.

Snow peas should be picked even earlier, when you can barely discern the peas inside. They’ll look just like the snow peas that you buy at the grocery store or eat in restaurant dishes.

Dynamite Salad

- 5 cups washed salad greens of your choice
- 1/2 cup chopped pea pods
- 1/2 cup chopped radishes
- 1/2 cup chopped carrots
- 1/2 cup chopped green beans
- 1/4 cup chopped green onions
- 2.5 cups canned in 100% juice pineapple chunks, drained or fresh orange segments
- 5 Tablespoons raisins or dried cranberries
- 5 Tablespoons chopped nuts, any kind except peanuts
- 3/4 cup Dynamite Dressing

Dynamite Dressing Ingredients:

- 3/4 cup yogurt, nonfat, plain
- 2 ½ Tablespoons orange juice
- 3 ½ teaspoon white vinegar

Directions:
1. Put mixed salad greens on a large platter or in a salad bowl.
2. In a large bowl, mix chopped vegetables and pineapple or orange segments.
3. In a small bowl, mix all ingredients for dressing.
4. Add dressing and stir. Spoon mixture over salad greens.
5. Top with raisins and nuts. Serve.

Makes 10 1-cup servings.

Nutrition information per 1 cup serving: 100 calories, 2.5g fat, 0g saturated fat, 18g carbohydrate, 2g fiber, 2g protein, 14g sugar, 30mg sodium

Country Style Potato Salad

- 3 medium baking potatoes
- 1 cup chopped celery
- 1/2 cup minced onion
- 1 cup fresh peas
- 1 Tablespoon prepared mustard
- 1/2 cup lowfat mayonnaise
- 1/2 cup yogurt, nonfat plain
- fresh cracked black pepper to taste

Directions:
1. Wash potatoes, leave skin on and cut in bite-size chunks.
2. Place in pan and cover with water. Bring to a boil, lower to simmer and cook uncovered until potatoes are tender, about 20 mintes.
3. Drain in colander and sprinkle lightly with cold water.
4. In the mean time, put the rest of the ingredients in a large mixing bowl. Drain potatoes well and add to the bowl.
5. Mix well and refrigerate until ready to use.

Makes 4 1-cup servings.

Nutrition information per 1 cup serving: 180 calories, 10g fat, 1.5g saturated fat, 18g carbohydrate, 5g fiber, 6g protein, 8g sugar, 330mg sodium

Green Beans

- Green beans are actually immature legumes—they are harvested before the seeds have been allowed to dry and mature. Legumes are the seed of a plant that has pods. All legumes absorb nitrogen from the air so they are rich sources of protein, more than any other plant food!
- Beans are high in soluble fiber which helps to control blood cholesterol.
- Beans are good for diabetics because their balance of complex carbohydrates and proteins provides a steady source of glucose.
- Green Beans are the most popular edible pod bean; lima beans are the most common shell bean in the US.
- Green fruits and vegetables help maintain vision and strong bones and teeth.

Nutrition Facts:

- Green beans have less starch, protein, folic acid, potassium (to keep our heart beating regularly) and thiamin (to help our body use energy) as dry beans.
- Green beans contain fiber that aids the body with digestion and elimination, Vitamin C (to help boost our immune systems to keep us from getting sick), Vitamin A (to help us see better in the dark) and small amounts of other nutrients.

Harvesting green beans

Harvest when the pods are firm, crisp and fully elongated, but before the seed within the pod has developed significantly. Pick beans after the dew is off the plants, and they are thoroughly dry. The bean plant continues to form new flowers and produces more beans if pods are continually removed before the seeds mature.

Marinated Three-Bean Salad

- 1 (8.5 ounce) can lima beans
- 1 lb of fresh green beans or 2 (8 ounce) cans cut green beans
- 1 (8 ounce) can red kidney beans
- 1 medium onion, thinly sliced and separated into two rings
- 1/2 cup chopped sweet green bell pepper
- 1 (8 ounce) bottle fat-free Italian salad dressing

Directions:
1. Wash hands and cooking area.
2. Drain the canned beans
3. Peel and slice the onion and separate into rings
4. In a large bowl, combine the lima beans, green beans, kidney beans, onion rings, and green bell pepper.
5. Pour the Italian dressing over the vegetables and toss lightly.
6. Cover the bowl and marinate in the refrigerator for at least one hour. The salad can be left in the refrigerator over night.
7. Drain before serving.

Makes 4 1-1/3 cup servings.

Nutrition information per 1-1/3 cup serving: 170 calories, 0g fat, 0g saturated fat, 35g carbohydrate, 8g fiber, 7g protein, 10g sugar, 690mg sodium

Creole Green Beans

- 1 pound fresh green beans, ends snapped off
- 2 small cloves garlic
- 1 teaspoon vegetable oil
- 1 cup chopped red bell pepper
- 1 cup chopped tomatoes
- ½ cup chopped celery
- ½ teaspoon salt
- ¼ teaspoon cayenne pepper

Directions:
1. Wash green beans, snap off the ends and cut in half.
2. In a large skillet, sauté garlic in oil over low heat for 1 minute.
3. Add green beans and bell pepper.
4. Increase heat to medium and cook for 5 more minutes.
5. Stir in the rest of the ingredients and cook for another 5 minutes. Serve warm.

Makes 8 ¾-cup servings.

Nutrition information per 3/4-cup serving: 40 calories, 2g fat, 0g saturated fat, 6g carbohydrate, 3g fiber, 1g protein, 10mg sodium

Tomatoes

- According to the U.S. Department of Agriculture, Americans eat more than 22 pounds of tomatoes every year. More than half this amount is eaten in the form of ketchup and tomato sauce.
- The tomato is a berry of the nightshade family, which includes potatoes, eggplants and peppers.
- Tomatoes are the world's most popular fruit, with more than 60 million tons produced world wide.
- Tomatoes are grown in every state of the US except for Alaska.
- Never store tomatoes in the refrigerator! Besides losing their nutritional value, they will also lose their flavor. It is best to store tomatoes above 55°F.

Nutrition Information:

- Tomatoes are high in vitamin C and A. Tomatoes supply some potassium, vitamin E, folate and dietary fiber.
- Cherry tomatoes and those tomatoes that are deep red in color are also a source of beta-carotene.
- Tomatoes are also rich in lycopene. Lycopene is a powerful antioxidant that may decrease the risk of certain cancers and heart disease.

Harvesting Tomatoes

Harvest tomatoes when the fruits are red & ripe (unless growing another variety). You can pick these tomatoes and store them at 70°F to ripen. Picked tomatoes should be placed in the shade; light is not necessary for ripening immature tomatoes.

Salsa Fresca

- 1 pound ripe tomatoes (about 2 medium tomatoes), chopped
- 1 ½ cups chopped onion
- 1/3 cup chopped fresh cilantro
- 3 jalapeno peppers, seeds removed and chopped
- 2 tablespoons lime juice
- 2 cloves garlic, finely chopped
- 1/4 teaspoon salt

Directions:

1. Combine tomatoes, garlic, onions and cilantro in large bowl.
2. Squeeze juice of one lime into bowl. Add salt and more lime juice to taste.
3. Serve with baked tortilla chips (optional).

Makes approximately 3 cups.

Nutrition information per 1/2 cup serving: 34 calories, 0g fat, 0g saturated fat, 8g carbohydrate, 2g fiber, 1g protein, 105mg sodium

Tomato, Basil and Bean Pasta Salad

- 1 pound ziti pasta or bow tie pasta
- 2 Tablespoons vegetable oil
- 1/4 cup vinegar
- 2 teaspoons Dijon mustard
- 1/4 teaspoon pepper
- 1 cup fresh basil leaves chopped
- 3 large tomatoes, coarsely chopped
- 1 cup cooked or canned (drained) kidney beans or garbanzo beans
- 1 cup mozzarella, or provolone cheese, cubed or shredded (optional)

Directions:
1. Cook pasta according to package directions. Drain and cool.
2. In a small mixing bowl, whisk together vegetable oil, vinegar, Dijon-style mustard and pepper to make vinaigrette.
3. In a large mixing bowl, combine pasta, beans, basil and tomatoes. Pour vinaigrette over top and toss together. Cover and chill at least 1 hour.
4. If desired, add cheese just before serving, tossing again to combine.

Makes 12 ½-cup servings.

Nutrition information per ½ cup serving: 220 calories, 3.5g fat, 0g saturated fat, 39g carbohydrate, 4g fiber, 8g protein, 2g sugar, 25mg sodium

Zucchini

- Zucchini is part of the summer squash family which also includes yellow crookneck and straightneck, scallop and patty pan squash. They can be dark green, light green, bright yellow or any combination.
- Squashes are native to North America and have been cultivated for thousands of years.
- Store fresh zucchini in a plastic bag in the refrigerator for up to one week for best quality. Be sure the zucchini is dry when you put it in the bag as moisture will encourage mold and spoilage.
- The flowers of the zucchini plant are also edible.
- The flavor of zucchini is best when it is less than six inches long.

Nutrition Information:

- One cup of zucchini has about 35 calories.
- It is a good source of vitamin A, vitamin C, calcium and potassium.
- A zucchini has more potassium than a banana.
- Zucchini is a good source of fiber with 4 grams per cup.

Harvesting Zucchini

Harvest zucchini when the fruits are 6 to 8 inches long and 1 1/2 to 3 inches in diameter. Some varieties may be edible at even larger sizes. It is important to keep zucchini picked, or fruit production slows. On the other hand, if you have so much zucchini that even the neighbors have had enough, leave one or two fruits on the plant to slow it down.

Be sure to cut the fruit from the plant at the stem between the fruit and the main stem. Attempting to pull zucchini off the plant may damage the entire plant.

For edible flowers, harvest early in the morning before they close, place them with their bases in water, and store in the fridge until you're ready to use them.

Zucchini Sauté

- 11/4 pounds zucchini (about 3 medium zucchini)
- ½ teaspoon olive oil
- 1 tablespoon dried oregano
- 2 cloves garlic, finely chopped
- 1 teaspoon grated lemon peel
- 1 tablespoon grated Parmesan cheese
- 1/4 teaspoon ground black pepper

Directions:
1. Cut zucchini in half crosswise, then cut each half into 4 lengthwise sticks.
2. Heat oil in a heavy nonstick skillet over medium-high heat.
3. Add oregano and garlic, and sauté for about 2 minutes.
4. Add zucchini and lemon peel, and sauté for about 3 minutes until zucchini is lightly browned.
5. Mix in Parmesan cheese and pepper. Serve warm.

Makes 5 1-cup servings.

Nutrition information per 1-cup serving: 32 calories, 1g fat, 0g saturated fat, 5g carbohydrate, 2g fiber, 2g protein, 31mg sodium

Fall Vegetable Succotash

- 1/4 cup olive oil
- 1 cup diced onion
- 2 finely chopped garlic cloves
- 2 cups red bell peppers diced
- 2 cups diced zucchini
- 2 cups yellow summer squash diced
- 3 cups frozen lima beans
- 3 cups frozen corn kernels
- salt and pepper to taste

Directions:
1. In a skillet over medium-high heat, add oil
2. Add onion; cook until translucent (2 minutes).
3. Add garlic, bell peppers, zucchini, squash, lima beans, and corn.
4. Season as desired; cook, stirring, until vegetables are tender (10 minutes).

Makes approximately 8 ¼-cup servings.

Nutrition information per ¼ cup serving: 170 calories, 8g fat, 1g saturated fat, 25g carbohydrate, 4g fiber, 4g protein, 7g sugar, 10mg sodium

Berries

- People have been eating strawberries, blackberries and blueberries for centuries. According to folklore, strawberries were considered a love potion, to show perfection and righteousness, symbolize peace and prosperity and to hold healing powers.
- Blueberries and blackberries are plants native to America and were around when the Pilgrims came from England.
- Both blueberries and blackberries had medicinal uses by Native Americans.

Nutrition information:

Berries pack the nutrition benefits in their small packages. Berries are:

- Rich in vitamin C, which helps you fight infections and may protect your body's cells from damage. About 8 medium berries supplies nearly 100 mg vitamin C – more than 100% of the Recommended Daily Amount and more vitamin C than medium orange supplies!
- A good source of folate, a B-vitamin that is may be needed to help reduce risk of heart disease and colon cancer.
- A good source of potassium – diets rich in potassium may help reduce the risk of high blood pressure and stroke.
- A good source of fiber to help prevent constipation, and to help reduce risk of heart disease and some cancers. All these berries supply about 4 g fiber in a one-cup serving.

Harvesting Berries

Select plump, firm, fully red strawberries. The small strawberries are often most flavorful. Grasp the stem just above the berry between the forefinger and the thumbnail and pull with a slight twisting motion.

Select firm, large plump full-colored blueberries that are deep purple-blue to blue-black. Reddish berries are not ripe.

Select plump, firm, fully red raspberries (or yellow or purple if that is the color of the variety). Unripe berries will not ripen once picked. If you must pull hard to remove the berry or it remains attached to its core, it is not ripe.

Paradise Smoothie

- 1 large banana
- 2 cups strawberries
- 2 ripe mangos, chopped
- 1/2 cup of ice cubes

Directions:
1. Combine all ingredients in a blender or food processor container. Blend until mixture is smooth.
2. Pour into glasses and serve.

Makes 4 1-cup servings.

Nutrition information per 1 cup serving: 121 calories, 1g fat, 0g saturated fat, 31g carbohydrate, 4g fiber, 1g protein, 3mg sodium

Blueberry Muffins

- 1/2 cup vegetable oil
- 1 cup sugar
- 2 eggs
- 1/2 cups lowfat milk
- 1 teaspoon vanilla
- 2 cup flour
- 2 teaspoons baking powder
- 1/2 teaspoon salt
- 2 cups blueberries

Directions:
1. Preheat the oven to 375 degrees.
2. Grease the muffin pans with fat-free cooking spray.
3. In a large mixing bowl, stir the oil and sugar until creamy.
4. Add eggs, milk and vanilla. Mix until blended.
5. In a medium mixing bowl, stir together the flour, baking powder, and salt.
6. Add the flour mix to the oil and sugar in the large bowl. Stir together.
7. Stir the blueberries into the batter.
8. Fill each muffin cup 2/3 full with batter.
9. Bake for 25 to 30 minutes.

Makes 12 muffins.

Nutrition information per muffin: 250 calories, 11g fat, 1.5g saturated fat, 37g carbohydrate, 1g fiber, 4g protein, 20g sugar, 200mg sodium

Garlic and Onions

- Garlic and onions have been around a long time. People in ancient times linked onions with eternal life because of their seemingly endless layers.
- History shows that garlic dates back to 4000 BC and is native to Central Asia.
- Garlic has been used in medical treatments for centuries. It was used to protect against plague by monks of the Middle Ages
- Onions are also believed to have originated in Asia, though it is likely that onions may have been growing wild on every continent.
- The ancient Egyptians worshipped the onion, believing that its round shape and rings symbolized eternity.

Nutrition information:

- Garlic is rich in vitamin B6 and vitamin C, and is a good source of thiamin.
- One medium onion contains around 60 calories and is also high in vitamin C and potassium.
- Some studies have shown that garlic and onions can also help treat high cholesterol, heart disease, and high blood pressure.
- The odors in garlic and onion are due to phytochemicals, which are the same compounds that scientists think show disease fighting actions.

Harvesting garlic and onions

Once the tops of your garlic plants start to die back, you know it's time to harvest. To harvest your garlic, start preparing a few weeks early. When you see the leaves starting to decline, stop watering. Always dig your garlic, never try and pull it.

Brush off any soil clinging to the bulbs. Leave the stalks and roots on the bulbs, while they dry. Keep your garlic is a cool (32 to 40 degrees F) dark place where it will still get some air circulation. Braiding and hanging garlic is a good way to keep it. Most garlic can be kept for 2-4 months.

You can always tell when onions have stopped growing. The leaves will lose their color and flop over. Let most of your onion tops fall over by themselves. Once they're down, leave the bulbs in the ground for another 10 days to two weeks to mature fully. Pull your onions up on a sunny day if you can, pull the mature onions in the morning and allow the bulbs to air dry in the garden until late afternoon.

Lay mature onions in a single layer on newspaper in a warm, well ventilated place to cure for a few days. Leave the onionsuntil the outer skin becomes papery and crispy dry. Hang in bunches or place in mesh bags and hang away from moisture. If stored in a dry cool place (50 to 60 degrees F), they will keep for months.

Spring Vegetable Sauté

- 1 teaspoon olive oil
- 1/2 cup sliced sweet onion
- 1 finely chopped garlic clove
- 3-4 tiny quartered new potatoes
- 3/4 cup sliced carrots
- 3/4 cup asparagus pieces
- 3/4 cup sugar snap peas, or green beans
- 1/2 cup quartered radishes
- 1/2 teaspoon dried dill
- 1/4 teaspoon salt
- 1/4 teaspoon black pepper

Directions:
1. Heat the oil in a skillet. Cook the onion 2 minutes, add the garlic and cook for another minute.
2. Stir in the potatoes and carrots. Cover, turn the heat to low, and cook until almost tender, about 4 minutes.
3. If the vegetables start to brown, add a Tablespoon of water.
4. Next add the asparagus, peas, radishes, salt, pepper, and dill. Cook, stirring often, until just tender - about 4 minutes more.
5. Serve immediately.

Makes four servings.

Nutrition information per serving: 80 calories, 1.5g fat, 0g saturated fat, 14g carbohydrate, 3g fiber, 3g protein, 5g sugar, 200mg sodium

Tomato Basil Bruschetta

- 8 Roma (plum) tomatoes, chopped
- 2 garlic cloves, minced
- 1/2 red onion, chopped
- 6-8 fresh basil leaves
- 2 Tablespoons extra-virgin olive oil
- salt to taste
- pepper to taste
- 1 loaf Italian or French bread, cut into 1/2 inch diagonal slices

Directions:
1. Preheat oven to 400 degrees F.
2. Combine tomatoes, garlic, onion, basil and olive oil in a bowl. Season with salt and freshly ground black pepper to taste. Set aside.
3. Arrange bread on a baking sheet in a single layer. Bake about 5 to 7 minutes until it begins to brown slightly.
4. Remove bread from oven and transfer to a serving platter.
5. Serve the tomato mixture in a bowl with a serving spoon and let everyone help themselves. If adding the tomato mixture yourself, add it at the last minute or the bread may become soggy.

Makes 12 servings.

Nutrition information per serving: 80 calories, 3g fat, 0.5g saturated fat, 12g carbohydrate, 1g fiber, 2g protein, 1g sugar, 120mg sodium

Carrots

- Carrots are a taproot, a type of root which grows downwards into the soil and swells. Carrots come in many sizes and shapes: round, cylindrical, fat, very small, long or thin.
- Carrots were known to both the Greeks and Romans and are believed to have originated in Afghanistan.
- Early carrots were typically not often eaten as food by the Greeks, but were used for medicinal purposes.
- Carrots were one of the earliest vegetables grown by man and are one of the most commonly eaten vegetables.

Nutrition Information:

- One cup of carrots contains about 50 calories.
- Carrots are one of the richest vegetable sources of vitamin A which helps promote good vision.
- Carrots also contain calcium, vitamin C and iron.
- Carrots have a higher natural sugar content than all other vegetables with the exception of beets.

Harvesting carrots

Mature carrots will be ready in about 2 months. A tiny head of orange will appear at the soil line when the carrots are mature. Carrots can be harvested when the roots are at least 3/4 inch in diameter. Under usual conditions, carrot tops may not be strong enough to be pulled. Instead, dig around the root to remove the carrots.

Garden Waldorf Salad

- 3 cups broccoli florets, chopped
- 1 cup grated carrots
- 1 1/2 cups sliced cauliflower
- 1 cup chopped apples
- 1/2 cup chopped green onions
- 1 cup non-fat vanilla yogurt
- 1/4 cup peanuts

Directions:
1. Toss all ingredients together in a large mixing bowl.
2. Refrigerate until ready to serve, up to 6 hours.
3. Serve chilled.

Makes four 1 ½ cup servings.

Nutrition information per 1 ½ cup serving: 160 calories, 5g fat, 0.5g saturated fat, 24g carbohydrate, 5g fiber, 8g protein, 16g sugar, 95mg sodium

Carrot Cookies

- 1/2 cup soft margarine
- 1 cup honey*
- 1 cup grated raw carrots
- 2 well beaten egg whites
- 2 cups all purpose flour
- 2 teaspoons baking powder
- 1/4 teaspoon baking soda
- 1/4 teaspoon salt
- 1 teaspoon cinnamon
- 2 cups raw oatmeal, quick cooking
- 1 cup raisins

*Note: Instead of honey, you can use 1 1/4 cups sugar mixed with 1/4 cup water.

Directions:
1. In a large bowl, cream together margarine and honey. Stir in carrots and egg whites.
2. Stir together flour, baking powder, baking soda, salt, cinnamon, oatmeal and raisins. Gradually stir flour-oatmeal mixture into creamed mixture, just until all flour is mixed. Do not over mix.
3. Drop from teaspoon on greased baking sheet.
4. Flatten slightly and bake at 350 degrees for 10 minutes, or until lightly browned.

Makes 30 cookies.

Nutrition information for two cookies: 130 calories, 3.5g fat, 0.5g saturated fat, 24g carbohydrate, 1g fiber, 2g protein, 13g sugar, 100mg sodium

Bell Peppers

- Bell peppers can be found in a rainbow of colors and can vary in flavor.
- Bell peppers are native to Mexico and Central America.
- Peppers were named by Christopher Columbus and Spanish explorers who were searching for peppercorn plants.
- Peppers quickly became popular in Europe, where they were eaten whole, made into spices and used as condiments.
- The most popular bell pepper in the United States is the green bell pepper.

Nutrition Information:

- One cup of bell peppers contains 50 calories.
- Bell peppers are a great source of vitamins A and C.
- Red bell peppers have the highest amounts of vitamins and are usually sweeter.

Harvesting peppers

Peppers may be harvested at any size desired. Green bell varieties are usually picked when they are fully grown and mature - 3 to 4 inches long, firm and green. When the fruits are mature, they break easily from the plant. Colored bell pepper fruits may be left on the plant to develop full flavor and ripen fully to red, yellow, or orange.

Stuffed Green Peppers

- 6 medium green peppers
- 1/2 cup chopped onion
- 1/2 cup chopped celery
- 1 clove garlic
- 2 tablespoons oil
- 1 16-ounce can kidney beans
- 2 cups cooked rice, brown or white
- 1 tablespoon parsley
- 1/4 teaspoon black pepper
- 1/2 cup grated cheddar cheese

Directions:
1. Remove top and seeds from green peppers.
2. Steam peppers until nearly tender, about 3 to 5 minutes.
3. To make filling, sauté onion, celery, and garlic in oil. Add beans, rice, parsley, and pepper.
4. Place green peppers in a baking pan. Spoon 1/2 cup of hot filling into each pepper. Top with grated cheese.
5. Bake at 350 degrees F for 10 to 15 minutes. (You can make this recipe ahead, cover and refrigerate until ready to bake; then bake at 350 degrees F for 30 minutes.)

Makes 6 servings.

Nutrition information per serving: 250 calories, 8.5g fat, 3g saturated fat, 35g carbohydrate, 10g fiber, 10g protein, 5g sugar, 330mg sodium

Zesty Quinoa with Black Beans

- 1/2 cup dry quinoa
- 1 1/2 cup water
- 1 1/2 Tablespoon olive oil
- 3 teaspoons lime juice
- 1/4 teaspoon cumin
- 1/4 teaspoon ground coriander (dried cilantro seeds)
- 2 Tablespoons cilantro, chopped
- 2 medium scallions, minced
- 1 (15 ounces) can black beans, rinsed and drained
- 2 cups tomato, chopped
- 1 medium red bell pepper, chopped
- 1 medium green bell pepper, chopped
- 2 (or to taste) fresh green chilis, minced
- black pepper to taste

Directions:
1. Rinse the quinoa in cold water. Boil water in a saucepan, and then add the quinoa.
2. Return to boil, and then simmer until the water is absorbed, 10 to 15 minutes.
3. While quinoa is cooking, mix olive oil, lime juice, cumin, coriander, chopped cilantro, and scallions in a small bowl, and set aside.
4. Cool quinoa for 15 minutes once fully cooked.
4. Combine chopped vegetables with the black beans in a large bowl, and set aside.
5. Once quinoa has cooled, combine all ingredients and mix well. Cover and refrigerate until ready to serve.

Makes six 1 cup servings.

Nutrition information per 1 cup serving: 140 calories, 4.5g fat, 0.5g saturated fat, 23g carbohydrate, 5g fiber, 5g protein, 4g sugar, 210mg sodium

Beets

- Beets are a root vegetable that has two parts — the edible root and the edible green leaves.
- Beets are native to the Mediterranean.
- Although the leaves have been eaten since before written history, the beet root did not become a popular food until French chefs recognized their potential in the 1800's. Beet powder is used as a coloring agent for many foods. Some frozen pizzas use beet powder to color the tomato sauce.
- It is estimated that about two-thirds of beet crops end up canned.

Nutrition information:

- Beet tops are an excellent source of vitamin A and the roots are a good source of vitamin C.
- Red beets also provide some calcium, and iron, and add fiber to the diet.
- Beets contain antioxidants and anti-inflammatory substances that help prevent cancer and fight heart disease.
- A one cup serving of plain cooked diced beets has 50 calories.

Harvesting beets

Beets can be harvested whenever they grow to the desired size. About 60 days are required for beets to reach 1 1/2 inches in diameter, which is the size often used for cooking, pickling or canning as whole beets. With most varieties, beets larger than 3 inches may become tough. Beets may be stored in a plastic bag in a refrigerator for several weeks. Cut off the tops of the beets one inch above the roots.

Roasted Root Vegetables

- 4 medium-sized root vegetables (potatoes, parsnips, beets, sweet potatoes)
- 2 chopped carrots
- 1 medium chopped onion
- 1/4 cup vegetable oil
- 3 Tablespoons Parmesan cheese

Directions:
1. Preheat oven to 350 degrees.
2. Cut vegetables into large chunks.
3. Place in a medium bowl and pour oil over top. Add Parmesan and mix well.
4. Spread an even layer on a baking sheet.
5. Bake for 1 hour or until tender. Check a few vegetables to see if they are tender.

Makes 4 servings.

Nutrition information per serving: 250 calories, 15g fat, 2g saturated fat, 26g carbohydrate, 7g fiber, 5g protein, 13g sugar, 150mg sodium

Sautéed Beet Greens

- 1 pound beet greens
- 1 to 2 tablespoons extra virgin olive oil, to taste
- 2 garlic cloves, minced
- 1 tablespoon salt, plus more to taste
- Freshly ground pepper
- 1/4 teaspoon dried red pepper flakes (optional)

Directions:
1. Remove the green leaves from stems.
2. Bring a large pot of water to a boil. When the water comes to a boil, add 1 tablespoon of salt and the greens.
3. Blanch the greens for 2 minutes, until tender. Transfer immediately to a bowl of ice water, then drain and squeeze the water out from its leaves. Chop coarsely.
3. Heat the oil over medium heat in a large, heavy nonstick skillet. Add the garlic and hot red pepper flakes (if using) and cook, stirring, until the garlic is fragrant and translucent, 30 to 60 seconds.
4. Stir in the greens. Stir for a couple of minutes, until the greens are nicely seasoned with garlic and oil. Season with salt and pepper, remove from the heat, and serve.

Make 4 servings.

Nutrition information per serving: 211 calories, 17g fat, 4g saturated fat, 12g carbohydrate, 2.5g fiber, 5g protein, 9g sugar, 230mg sodium

References

1. Nord, M., Coleman-Jensen, A., Andrews, M., Carlson, S. (2010). Household Food Security in the United States, 2009. USDA Economic Research Report No. (ERR-108).

2. Cohen, D., Spear, S., Scribner, R., Kissinger, P., Mason, K., & Wildgen, J. (2000). "Broken windows" and the risk of gonorrhea. *American Journal of Public Health*, 90(2):230-236.

3. Frumkin, H. (2005). Guest Editorial: Health, Equity, and the Built Environment. *Environmental Health Perspective*, 113(5):290-291.

4. Bremmer, A. Jenkins, K. Kanter D. (2003). Community Gardens in Milwaukee Procedures for Their Long-Term Stability & Stability & Their Important to the City. Department of Urban Planning University of Wisconsin-Milwaukee.

5. Dorn, Sheri. August, 1996. Gardening really is good exercise. Virginia Cooperative Extension. http://pubs.ext.vt.edu/348/348-250/348-250.html

6. Armstrong, D. (2000). A survey of community gardens in upstate New York: Implications for health promotion and community development. *Health and Place,* 6(4):319-327.

7. Virginia Department of Health. (2010). Chronic Disease Indicators by Health District 2010. http://www.vahealth.org/cdpc/Data.htm

8. Feeding America. (2011). Map the Meal Gap. http://feedingamerica.org/hunger-in-america/hunger-studies/map-the-meal-gap.aspx

9. U.S. Department of Agriculture and U.S. Department of Health and Human Services. (2010). Dietary Guidelines for Americans, 2010. 7th Edition. http://www.cnpp.usda.gov/Publications/DietaryGuidelines/2010/PolicyDoc/PolicyDoc.pdf

10. Sommerfeld, A., Waliczek, T., Zajicek, J. (2010). Growing Minds: Evaluating the Effect of Gardening on Quality of Life and Physical Activity Level of Older Adults. *HortTechnology*. 20: 705-710

11. Mason, Sandra (2005). Health Benefits of Gardening. University of Illinois Extension. http://web.extension.illinois.edu/cfiv/homeowners/050103.html

12. Main, Emily (2011). 4 Surprising benefits of gardening. Rodale. http://www.rodale.com/benefits-gardening

Recipes reprinted courtesy of:

Network for a Healthy California, Champions for Change.
http://www.northcoastnutrition.org/GardenBasedNutritionEducation-i-127-109.html

Network for a Healthy California, Champions for Change.
http://www.cachampionsforchange.net/en/docs/Everyday-Healthy-Meals-Cookbook.pdf

The University of Georgia, Department of Foods and Nutrition.
http://noahnet.myweb.uga.edu/plansfv.html

United States Department of Agriculture. SNAP-Ed Connection Recipe Finder.
http://recipefinder.nal.usda.gov

Share Our Strength. Cooking Matters for Adults.

New York Times. (2008).
http://www.nytimes.com/2008/08/08/health/nutrition/08recipehealth.html

Garden and harvest information:

National Recreation and Parks Association. Building a Community Garden in Your Park: Opportunities for Health, Community, and Recreation.

University of Missouri. Community Garden Toolkit.

University of Illinois Extension. Harvesting Vegetables.
http://urbanext.illinois.edu/tog/harvest.cfm

University of Arizona Extension. Container Gardens.
http://ag.arizona.edu/pubs/garden/mg/vegetable/container.html

Charlestown Township, Brightside Farm Community Garden.
http://www.charlestown.org/ct-org/ct-issues/ct-brightside/brightside_garden_03.asp#Layout

Virginia Cooperative Extension, Master Gardeners of Northern Virginia. Edible Container Gardening – How-To Guide (2008).

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Appendix I: Community Garden Management Plan

Vision

- What is your envisioned mission of the garden?
- Is the garden wanted and needed by community members?
- What would you like your garden to do for your community and what benefits would you like to see?

Management needs

- Management roles – one manager or team of volunteers?
- Conduct — what will be your member's responsibilities to other gardeners and to the community garden? (behavior, site safety and orderliness, treatment of visitors, etc)
- How you will make decisions together?
- How will you resolve disagreement?
- How you will communicate between the management team and membership and with the landholder/public/media?

Safe Gardening

- How will you manage safety and health in the garden (safe use of tools)?
- Outline the training process for new garden members related to safety in the garden.
- What initial training will be needed in the start-up stage of the garden?
- What will be your process of inducting new gardeners?
- How will you familiarize new gardeners with accepted practices? (compost production, organic gardening methods such as pest management etc)

Policies/Agreements

- Management of the whole site (management of: labor, waster, pest, soil, water)
- Water management — regular watering schedule, runoff and drainage, harvesting, cost
- Types of sustainable materials brought on site and their safe storage
- Access (opening times, will the garden be locked at night, when can interested people enquire about joining, disabled access)
- Acceptance of a range of people and of children
- Allocation of plots
- Management of shared areas
- Alcohol, smoking and drugs onsite
- Dogs onsite

Funding - Continued Operation of the Community Garden

- Fundraising
- Applying for grants