

Diggin' In: Organic Gardening Workshop



"To forget how to dig the earth and to tend the soil is to forget ourselves."
Mohandas K. Gandhi

Brandy Pierce
Spring 2008

Humans likely started farming 9,000 to 10,000 years ago when they noticed a seed growing from their garbage pit. (Green Revolution) For thousands of years, humans chose the superior seeds, shared them with their neighbors and pushed agriculture to become more productive. The main factor in farming was to consider what nature would produce; humans needed the highest quality, most reliable food. The cultivation and distribution of seeds and food depended on the human ability to trade and share with their neighbors. These survival tactics provided humans with two major benefits. First of all, people had a close relationship with one another. Secondly, people were aware of the process in which their food was grown or made and they knew exactly where their food came from. In today's world, people are exceedingly busy and overscheduled and in response to a demand, our food system has become industrialized. While there are certain benefits to an industrialized food supply, there are also drawbacks. One of those drawbacks is that people have lost touch with their food. We are no longer aware of where our food comes from or how it was grown and produced. Another drawback is the missing link in human relationships. When we purchase our food from a large-scale grocery store, we lose the opportunity to get to know and support our neighbors and local farmers. The purpose of this project is to offer an alternative to conventional food purchasing and to allow people to become closer to nature and one another. That proposed alternative is personal organic gardening. This project is aimed at youth (high school age) and gives them an opportunity to delve into organic gardening and encourage them to consider buying food from local growers.

In 1939, Swiss Chemist Paul Muller created the synthetic compounds, DDT. This discovery, coupled with the agricultural revolution, changed the face of agriculture. Farmers were able to use mechanical equipment and as a result, large-scale agriculture arose. In the 1940's, manufacturers began to produce large amount of synthetic pesticides and those pesticides became

widespread. The 40's and 50's are known as the "pesticide era" (Oregon state.) These pesticides were applied heavily on crops before their health risks were known. There has been much controversy since the 1970's about the health implications of these chemicals. According to the Natural Resources Defense Council, there is a higher incidence of brain cancer, leukemia and birth defects in children with early exposure to pesticides. (NRDC) More than 80% of the most commonly used pesticides today have been classified by National Academy of Sciences researchers as potentially carcinogenic -- and are routinely found in mothers' milk.

In addition to the health risks associated with widespread pesticide use, there are environmental factors to consider as well, both from conventional food production and from America's industrialized food system. Two of the main problems are the contamination of ground water and the tremendous amount of fossil fuels used in transportation of food.

The contamination of groundwater is a danger from the overuse of pesticides and fertilizers. Half of the U.S. populations draw water from underground aquifers for human consumption. Excess nitrates from fertilizer can leach into groundwater and, in high enough concentrations, make such water dangerous to drink. (Green Revolution) One of the health risks associated with the excess nitrates is methemoglobinemia, or blue baby syndrome. This condition occurs when infants ingest tap water, which is contaminated with excessive nitrates. The nitrates reduce the oxygen carrying ability in their blood and they suffer from breathing trouble, diarrhea, vomiting and in extreme cases, lethargy and loss of consciousness.

In regard to the transportation of food, the modern industrialized food system consumes a great deal of fossil fuels. A 2001 Iowa State University Study showed that the average piece of produce travels 1500 miles to arrive at our grocery stores. The conventional food system releases

5 to 17 percent more carbon dioxide into the atmosphere compared to local systems. (Ad busters) Although we have the capability to grow and yield enough food to feed our country, 90% of our food is imported from other countries such as China, Honduras and Mexico. Not only are the transportation practices of conventional food harming the environment; it is a large contributor to our reliance on foreign fuels and the depletion of natural resources.

The statistics and findings of current food studies leave people wondering what they can do to decrease these risks. An intimate area of our life (our food) has been handed over to corporations and industry. Organic gardening is one practice that can address topics such as lessening environmental depletion, improving family health, nurturing human relationships and learning more about the world around us.

The project focuses on common practices of organic gardening and centers on techniques used to avoid the application of synthetic pesticides and fertilizers. The outcomes for the learners is to have a better understanding of garden practices, get hands on experience with the process of plant biology and promote abstract thinking. The knowledge gained from this project can be incorporated, integrated, and used to it's full academic and social potentials; not only outdoors but in the classroom as well.

From an outside perspective, the idea of a gardening workshop might seem to be lacking in academic significance, however, using gardening as a teaching tool to combine separate academic areas, students can achieve cohesion of numerous fields of study. For the most part, {high} schools separate and classify students by their ability to perform on academic tests, their grades, past school experiences, their goals and possibilities for the future. (City farmer) Hands on and experience learning is essential and fundamental to all education. "Children learn best by

doing. Doing requires motivation, curiosity, some freedom to experiment and explore and an opportunity to put some basic skills to practical application.” (Potter) By learning to garden in the outdoor, garden setting, students are able to put abstract thoughts into practice. Cross-curricular education can be achieved through mathematical calculations, scientific equations and problem solving. Coinciding with Howard Gardners Multiple Intelligences, gardening caters to student’s different ways of learning. For example, calculating germination dates encourage the logical-mathematical areas of student’s intelligences, while toiling through soil in order to cultivate seeds lends itself to the bodily kinesthetic areas. The most obvious intelligence that gardening deals with is the naturalist intelligence. This intelligence “designates the human ability to discriminate among living things (plant and animals) as well as sensitivity to other features of the natural world.” (Act of Teaching) The world works as a blend of subjects such as mathematics, English, and science; this project presents a topic that is unified in nature and encourages incorporation of higher level thinking in several areas. By teaching to garden, one is teaching a complete person rather than a fragmented subject area.

The content of the project covers a broad spectrum of applicable practices, basic gardening information and resources available for gardeners. The aim is to present vegetable gardening as a progressive, youthful endeavor rather than a hobby nearing extinction. Focus is placed on non-traditional, innovative, non-conventional ideas. Students will have an opportunity to tour a local farm and learn about equipment, their uses and alternatives. This will be considered a potential career focused pursuit. Students will also learn about practices in forward-looking gardening such as plasti-culture, perma-culture and portable chicken gardening. The initial day of the project will cover a number of basic ideas as well as address the issues concerning conventional food practices in comparison to organic food practices. There will be several days of

learning where the fundamental ideas are to be explored further and implications will be made meaningful and applicable to the student's gardens. Because of the considerable amount of required lesson involved, there will time in the "classroom" as well as application programs in the garden. This will be a time for student's to employ the information and apply their knowledge. It is expected that by the end of the project, student's gardening knowledge will have gained and they will be expected to apply the cumulative knowledge.

In addition to gaining knowledge about the current U.S. food system and hands-on gardening information, the project will also concentrate on the area of sustaining human relationships. Included in the curriculum for the final day is a brief outline of possible food sources besides large-scale grocery stores. Alternatives that might be included are Farmer's Markets, Community Supported Agriculture (CSA) and Community Gardens, however, it is encouraged that each teacher and/or leader research options available in his or her local community. Many times, opportunities exist for local farmers and gardeners to visit the classroom or garden and share his or her experiences. The aim of these visits and education is to put the students in touch with their food and to make them aware of their options for local food. Topics to be emphasized are the obligation to reduce environmental impacts from our food, take responsibility for our health and safety and to support people and human relationships.

This project is designed to fit into a 4-H project guide and students' will have the option of competing in a Horticulture Contest as per described in the 4- Rules and Regulations Handbook - 2008. However, the practicum could easily be carried over into a high school or middle school classroom with very little modification.

The data available to consumers today show that conventional farming and gardening have an impact on our health, our relationships and our environment. While there are benefits to conventional practices, there are also drawbacks. By teaching a younger generation to produce their own food, to rely on one another to get that food and to become aware of environmental impacts, we open the door to a new change in the world of agriculture and society itself. By offering this organic gardening project, it is hoped that leaders and teachers can plant a seed; not only in the soil, but also in the minds of young people, communities and families about the significance that organic gardening can encompass for individuals and the implications that organic gardening can possess for the future of our food.