Lifestyle Horticulture is known around the world by different names. In the United States, it is casually referred to as the green industry and more formally as the environmental horticulture industry. Lifestyle horticulture is a rapidly growing and very visible component of the world economy, but interestingly there is little information available at the national and international level.

The lifestyle horticulture industry is comprised of wholesale nursery, greenhouse, and turfgrass sod growers; landscape service firms such as architects, designers/developers, contractors, and maintenance firms; retail firms such as garden centers, home centers and mass merchandisers with lawn and garden departments, and marketing intermediaries such as brokers and horticultural distribution centers (re-wholesalers). There is also a substantial allied trade industry that supplies various production inputs to the industry.

The lifestyle horticulture industry must do more to promote itself by educating the public regarding the numerous economic, environmental, and social benefits it provides to society. After all, lifestyle horticulture is, in essence, a true green industry, but most people do not consider this fact. The plethora of benefits provided by flowers, shrubs, and trees is not common knowledge. People often have difficulty in even seeing flowers or plants in their own environment, much less connecting plants to tangible benefits. For most people, flowers and other plants are a part of the subconscious sector of mental life, perceived as the backdrop, not the main actors in the playing out of our everyday lives.

The lifestyle horticulture industry is large, complex and dynamic, and represents a vital part of the U.S. and world economies. Second, as many countries in the world become increasingly industrialized and urbanized, lifestyle horticulture will have an increasingly important role to play. Hence, the demand for lifestyle horticulture amenities will grow in the years to come as economies develop and more people move up to the “middle class” and expect a better quality of life. But there is another dimension to these demographic trends that should not be underestimated. As global populations grow, pressures on resources such as land, water and energy will become even more acute. Lifestyle horticulture is only one among many industries competing for these scarce resources. Increasingly local, regional and national governments are weighing the use of these resources in terms of their benefits and costs.

One obvious and critical measure is economic. For each unit of scarce resource used, how much is returned to society in terms of economic gain via income, employment, value added and taxes paid? Unfortunately, the economic contribution of lifestyle horticulture is not adequately documented in most countries and, if it is, the analyses are usually incomplete. Industries that have rigorously established their economic contribution will be in a stronger position to preserve the use of these scarce resources. Recent research in the literature, however, has pointed to specific economic, environmental, and social benefits of lifestyle horticulture and these will be discussed in the remainder of this article.

ECONOMIC BENEFITS

The lifestyle horticulture industry has extensive linkages to other sectors of regional and national economies, generating earnings, employment, and tax revenues to local governments, as illustrated in Fig. 1. Estimates of the economic contributions of the U.S. lifestyle horticulture industry were recently updated using data for 2007-08 (Hodges et al., 2011). Total sales revenues for all sectors were $176.11 billion, direct output was $117.40 billion, and total output impacts, including indirect and induced regional economic multiplier effects, were $175.26 billion, as summarized in Table 1. Total industry payroll was $35.88 billion and the total labor earnings impact, with multiplier effects, was $33.16 billion. The total value added impact was $107.16 billion, including employee com-

<table>
<thead>
<tr>
<th>Industry group / sector (NAICS)</th>
<th>Direct output</th>
<th>Total output impact</th>
<th>Total earnings impact</th>
<th>Total value added impact</th>
<th>Direct employment</th>
<th>Total employment impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production and manufacturing</td>
<td>52,572</td>
<td>13,145</td>
<td>32,128</td>
<td>6,169</td>
<td>468,692</td>
<td>446,462</td>
</tr>
<tr>
<td>Nursery and greenhouse production (1114)</td>
<td>20,914</td>
<td>5,161</td>
<td>13,248</td>
<td>2,346</td>
<td>146,756</td>
<td>130,414</td>
</tr>
<tr>
<td>Lawn and garden equipment manufacturing (333112)</td>
<td>11,632</td>
<td>1,160</td>
<td>2,028</td>
<td>300</td>
<td>12,785</td>
<td>10,564</td>
</tr>
<tr>
<td>Horticultural services</td>
<td>92,830</td>
<td>30,151</td>
<td>54,521</td>
<td>4,238</td>
<td>1,123,428</td>
<td>1,075,343</td>
</tr>
<tr>
<td>Landscaping services (56173)</td>
<td>86,661</td>
<td>27,809</td>
<td>50,283</td>
<td>3,542</td>
<td>596,896</td>
<td>548,085</td>
</tr>
<tr>
<td>Landscape architectural services (54132)</td>
<td>6,169</td>
<td>2,342</td>
<td>4,238</td>
<td>34,615</td>
<td>48,085</td>
<td></td>
</tr>
<tr>
<td>Wholesale and retail trade</td>
<td>29,856</td>
<td>9,866</td>
<td>20,511</td>
<td>2,962</td>
<td>357,515</td>
<td>312,960</td>
</tr>
<tr>
<td>Total all industries</td>
<td>175,258</td>
<td>53,162</td>
<td>107,160</td>
<td>1,202,210</td>
<td>1,949,635</td>
<td></td>
</tr>
</tbody>
</table>

Values for wholesale and retail trade sectors reflect share of sales, employment and payroll for horticulture product lines, and gross margin on sales for output.

Total impact estimates include regional economic multiplier effects.

North American Industry Classification System.
comes customers inside, but also enhances their aesthetically pleasing landscaping not only well-the store. The positive environment created by a significant difference in how a customer perceives few businesses realize is that the simple addition effect to maintain their customer base. What are they important? In today's economic cli-
Figure 1. Structure of the lifestyle horticulture industry.

So what do all these numbers mean and why are they important? In today's economic cli-
Figure 2. Lifestyle horticulture provides tremendous economic benefit to residential and municipal properties, increasing perceived property values by 9 percent, on average.

and services offered by that store. Consumers are willing to pay higher prices, travel further to, and shop longer in a store that they perceive to be a quality establishment. In addition, ornamental plants are an effective way to revitalize a stale business, bring in additional customers, and improve the overall environment of the store. Furthermore, the presence of ornamental plants reduces shopping-related stress and customers feel more at ease in a store, which is a key factor in increasing the total amount of time they spend shopping.

Landscape amenities represent an effective tool to boost the occupancy rate of apartments and other commercial buildings. People enjoy aesthetically-pleasing areas and are much more likely to choose to live and work in buildings with attractive landscapes, so there is a high correlation between nice landscaping and high occupancy rates of buildings. It therefore becomes more economically feasible to invest money in landscaping, because the return in the number of tenants and rents received far exceeds the cost of installing ornamental plants.

Parks and botanical gardens have been shown to be effective tourist attractions in both large and small cities, and consequently, are a strategic source for generating tourism revenue. Tourist expenditures on food, transportation, lodging, etc. represent additional sources of revenue for local businesses that provide these services. Moreover, new revenue from outside the region adds to the overall economic base of a local economy. Admissions and ancillary dollars from botanical parks also augment municipal revenue through the community's attendance at special events held on park premises. This revenue gets filtered back into the economy and adds to the financial prosperity of the community.

Home improvements can add significant value to a property, and landscaping yields, on average, a 109% return on every dollar spent. This is much higher than other home improvements (Fig. 2). Homebuyers respond positively to homes with professionally landscaped and manicured lawns, and consequently perceive a higher property value. With landscaping, it is possible to increase its value to potential buyers and receive a significant positive monetary return on this external home improvement investment. Landscape improvements are also an important strategy for increasing property sales during economically depressed times.

Planting trees along paved roads reduces temperatures on the ground and helps increase the longevity of the paving materials. When asphalt is continually exposed to the sun, it tends to break down faster, requiring more frequent maintenance that can cost a great deal of money, and be a source of inconvenience for residents. The installation of shade trees greatly reduces the temperature of the ground and lengthens the asphalt's life span. This ensures that streets stay usable for longer periods of time, saving the city on maintenance costs, and providing residents with shade over pedestrian walkways.

ENVIRONMENTAL (ECOSYSTEMS SERVICES) BENEFITS

Trees and other ornamental plants are crucial to the sequestration of carbon from the earth's atmosphere and play an important role in reducing the carbon footprint (Brethour et al., 2007; Hall and Dickson, 2011). Research has shown that large trees can absorb significant amounts of carbon dioxide, particulate matter and other pollutants from the atmosphere each year and release oxygen through photosynthesis. As such, trees and other landscape plants serve as an important tool in improving air quality in cities and mitigating potential health effects on human inhabitants (Fig. 3).

Cultivating urban green spaces is an effective way to host wildlife populations in otherwise inhospitable areas. Providing animals with habitats and refuges within populated areas increases their survival and success. Sheltering animal populations in the city is part of maintaining urban biodiversity, an important aspect of keeping a city environmentally friendly.

Planting trees and other ornamental plants around a building can significantly reduce the extreme temperatures in the ambient environment, thus lowering the energy cost of heating and cooling, and in turn, reducing its environmental burden (Bowler et al., 2010). Thus, planting trees around buildings is not only a positive step towards reducing energy consumption, but it also has a significant financial benefit as well. Trees also help protect buildings from extreme weather conditions, reduce noise pollution, and improve air quality around them. Additionally, trees provide shade, which helps to reduce energy consumption in buildings by cooling the surrounding air. This can lead to lower air conditioning costs and a more comfortable living environment.

The benefits of trees extend beyond their aesthetic and environmental impacts. They also have economic benefits. Trees can increase property values, make neighborhoods more attractive to potential homebuyers, and contribute to overall neighborhood safety and security. According to research, homes with mature trees on the property can command premium prices, leading to a higher return on investment for homeowners. Furthermore, trees can reduce crime rates in urban areas by providing a natural barrier and serving as a visual indicator of a well-maintained and secure neighborhood.
Urban glare is the excessive reflection of sunlight on surfaces such as windows and buildings. Green spaces reduce urban glare in cities by absorbing light and, strategically placed landscaping becomes an important tool for city planners to capture and deflect light so that it is less unpleasant for residents and drivers, improving the quality of life in the community.

Lifestyle horticulture spaces can reduce the harmful effects of wind in cities by slowing and diminishing its strength, helping to preserve delicate natural environments that could be harmed by high winds. Minimizing wind strength also reduces soil erosion due to wind gusts and reduces the need for heating and cooling in buildings by moderating the effects on temperature.

WELL-BEING BENEFITS

The calming influence of natural environments is conducive to human labor productivity by increasing a person’s ability to concentrate on the task at hand. Work performed under the natural influence of ornamental plants is normally of higher quality and completed with a higher accuracy rate than work done in environments devoid of nature. The influence of plants can increase memory retention up to twenty percent, stimulating the senses and improving mental cognition and performance (Ulrich, 2003).

Keeping plants in a child’s learning environment enhances learning capabilities by helping them to focus and concentrate. This improves their ability to learn new things and makes it easier for them to absorb and retain information. Specifically for children with problems paying attention, adding plants to the classroom can have a dramatic positive effect on the way they learn. For example, for children with Attention Deficit Disorder, learning in a natural environment can help them to engage more in the classroom, improving their focus and concentration on the task at hand. The soothing effects of natural aesthetic beauty help to minimize the distractions that would otherwise occupy their minds.

Botanical gardens and other entities utilizing natural green spaces often create educational programs for children and adults in order to teach them the value of being environmentally-conscious and conserving natural resources. Parks and gardens foster an appreciation for nature that often instills in residents a sense of responsibility to care for and protect the environment (Hull and Ulrich, 1992).

Keeping flowers and plants in and around the home and workplace is an excellent way to lower stress levels and anxiety. Research shows that people who keep flowers in their home feel happier and more relaxed. As a result of the positive energy they derive from plants, the chances of suffering from stress-related depression are decreased as well. Active participation in gardening and landscaping activities is also an effective way to reduce stress levels. Studies have shown that people who nurture plants and garden have less mental distress than others. Gardening provides people with a positive way to channel their stress and frustration into something beautiful that provides them with comfort and joy. Part of the effects of gardening comes from the satisfaction people get from nurturing a living thing to grow. Plants and gardening soothe people because they help them turn their stressful feelings into something positive which gives them pleasure and provides an excellent coping mechanism for their daily frustrations. This often translates into reduced urban crime in cities with enhanced green spaces (Gorham et al., 2009).

Parks and urban green spaces impact people’s health by providing them with an inexpensive (often free) setting for recreation. There is a positive correlation between the presence of a park in a neighborhood and the level of physical activity of the residents: people are much more likely to exercise when there is a convenient, no-cost, aesthetically pleasing area or facility for them to use. As a result, residents of neighborhoods with beautiful parks are less susceptible to physical ailments and more resilient against minor illnesses, and therefore do not spend as much on health care and medical treatment. Healthy people are generally happier people; residents who exercise regularly have better overall health and a more positive mental outlook (Zampini, 1992).

Plants and ornamental shrubs and flowers have a practical application in hospitals: the presence of plants in patient recovery rooms has been shown to reduce the time necessary to heal. The soothing effects of ornamental flowers and plants are so great that simply having daily views of flowers and other ornamental plants in landscaped areas outside patient recovery rooms can also significantly speed up recovery times. Another technique to decrease recovery time is horticulture therapy, where patients care for and nurture plants themselves. Many patients who physically interact with plants experience a significantly reduced recovery time after medical procedures.

Gardening can have therapeutic effects on people who have undergone either mental or physical trauma. The act of nurturing a plant can provide victims with a way to work through difficult issues and heal their wounds. Gardening is a therapeutic tool that can be used to help put people in a better psychological state during recovery and help them to work past the mental barriers that could impede their healing (Dunnnett and Qasim, 2000).

Ornamental plants affect the level of compassion that people feel towards others. Studies have shown that people who spend more time around plants are much more likely to help others, and often have more advanced social relationships. People who care for nature are more likely to care for others, reaching out to their peers and forming shared bonds resulting from their common interests. Extended exposure to nature and wildlife increases people’s compassion for each other just as it increases people’s compassion for the environment in which they live. In short, being around plants improves relationships between people and increases their...
concern and empathy toward others (Younis et al., 2008).

Spending time in nature gives people an increased feeling of vitality, increasing their energy levels and making them feel more animated. In turn, their performance levels are enhanced by this improved state of mind. Natural environments induce a positive outlook on life, making people feel more alive and active. Plants can help people at work and at home by increasing their perceived vitality and feelings of added energy (Fig. 4). People who spend more time outside in nature have a significantly more positive outlook on life than people who spend a great deal of time indoors (Evers et al., 2000).

 Beautifying traffic medians not only improves the aesthetics of the roadways, it also affects driver attitudes. Studies show that drivers are more at ease on roadways with natural landscaping, and are much more inclined to think positively about the community that they are driving through if the roadways are beautiful. Furthermore, adding trees to roadways creates a sort of natural obstruction that could reduce the likelihood of cars crossing medians into oncoming traffic lanes, thereby improving driver safety and making the community a safer place for everyone to live.

How does one place an economic value on such nebulous but vital amenities that enhance the quality of life so dramatically? Measuring these less tangible benefits represents an additional challenge that must be undertaken by researchers of the lifestyle horticulture industry. In the meantime, lifestyle horticulture needs to do more to promote its contributions to society at large in order to affirm its value and relevancy in the lives of citizens worldwide.

References


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