

LAND USE PLANNING AND SPATIAL CONFIGURATION **BENEFIT COMMUNITY AGRICULTURE** AND **STIMULATE** ECONOMIC DEVELOPMENT

By Gary Austin

Billions of dollars are lost from states involved in commodity agriculture that market crops and livestock globally and nationally (Menter, 2011). Increasing community agriculture improves municipal, community, and state economies due to multiplier effects from direct sales of locally produced goods (Enshayan, 2009). Currently, limited local supply and high demand for local produce establishes an environment where new businesses can flourish, especially in metropolitan counties and rural counties located nearby (Martinez, 2010).

This paper addresses the production, processing, distribution, marketing, access, partnerships, and waste management issues that contribute to the successful development of new community agriculture businesses. Governmental policies, programs, and planning initiatives can foster community agriculture so that it makes sustained contributions economically, socially, and environmentally. In order to succeed, community agriculture needs the support of proactive urban planning policies and physical planning to locate productive lands that create positive relationships with other urban uses and the natural environment.

Local Food Supply

In the Greater Treasure Valley (Boise, Idaho) \$5.6 million of \$1.87 billion spent annually on food is purchased directly from local producers (Menter, 2010). This suggests a terrific opportunity to expand the supply of locally produced products. If we consider the value of all edible agricultural products sold directly to individuals in Idaho (at farmers' markets, farm stands, etc.) it represents only 0.1% of the value of all agricultural products sold. This means that virtually all of the agricultural productivity of Idaho is concentrated in a few commodity crops, which are exported (USDA, 2007).

Demand for Local Food

Opportunities for new farmer's to sell locally grown foods is increasing rapidly. The number of shareholders in existing CSA (community supported agriculture) farms grew 50%

between 2007 and 2009. Between 1998 and 2009, there was a 92% increase in the number of farmers' markets in the U. S. (Martinez, 2010) and direct sales increased 49% between 2002 and 2007. CSA farms are projected to increase from 3,000 to over 18,000 by 2020 (Local Harvest, 2010). Locally grown food sold to intermediates, like grocery stores, is also growing (Martinez, 2010), and the Farm-to-school program is also a growing segment in the local foods market.

Fresh vegetable production in Idaho is 5.8 acres per 1,000 people, which is below the national average. Sweet corn, cucumbers, asparagus, bell pepper, broccoli, and carrots are among vegetables undersupplied by the conventional agricultural system. Another demand factor is the increased consumption of vegetables and melons, which rose 5.5% between 2002 and 2007 (USDA, 2007).

Community Economic Benefits

As referenced above, almost all food consumed locally is imported (Menter 2010 and 2011) and because of this local communities are missing out on economic opportunities. Local farmers purchase materials, equipment, and financial services, stimulating the local economy and providing an indirect benefit. Their locally produced food and payments for labor directly benefit the community. When employees and local suppliers purchase services and goods, money re-circulates through the local economy (accrued benefits).

These direct, indirect, and accrued benefits create a multiplier effect, where one dollar spent generates more than one dollar of economic benefit (Martinez, 2010). Commodity agriculture with multipliers of 1.44, 1.56 and 1.53, compare to 1.86, 1.83 and 1.94 for value of food produced, labor income, and job multipliers, respectively (Enshayan, 2009). The impact of new local foods businesses is surprisingly large. If residents bought 15% (instead of the current 2%) of their food from producers within the two counties comprising metropolitan Boise, then local farmers would earn \$18,000,000 in new income annually (TVAC, 2010).

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Promoting New Community Agriculture Businesses

Communities can begin to increase their local food production through proactive land use planning geared toward increasing community agriculture. This effort can be initiated at any level by creating a land inventory that maps fertile soils, slopes, aspect, early frost microclimates, vacant parcels, urban development, vehicular and pedestrian access, schools, public land, and community centers. The inventory maps are the bases for gaining the public's input (often via public planning charrettes). Overlaying the suitability factors identified in the inventory will yield desirable urban agriculture parcels.

Production

Agricultural economic development requires attention to production, processing, distribution, marketing, access, partnerships, and waste management. Proximity, land cost, soil fertility, and water are production factors for new farms. The most suitable parcels near the town should be designated as permanent uses on future and existing land use and zoning maps. Dave Swenson (2011) at Iowa State University has developed a system to match metropolitan demand for local agricultural products to the land needed to satisfy those demands.

Processing

For agriculture producers to get their products to market, the products must be processed. Fruit and vegetable products require cleaning and packaging; milk products must be pasteurized and packaged; and meats must be processed and packaged. These steps in the process of agriculture production provide opportunities for entrepreneurs, which in turn creates needs that can be filled by local financial institutions and economic development organizations to help plan, stage, and fund the new business development in support of this new local agriculture market.

Distribution

Ideally, and most commonly local farmers distribute their own products, but non-profit or cooperative distribution centers have allowed small producers to compete more effectively when supplying products to institutional clients or grocery

store chains. Planning support of distribution of local food includes creating space and administrative support for farmers' markets, allowing sales of agricultural products from farm parcels, and facilitation of economic development summits to match growers, processors, and distributors.

Marketing

Direct sales at farmers' markets are critical for most local-food growers. These markets benefit the local economy since they create positive multipliers (indirect = 1.58; accrued = 1.47; jobs = 1.47) (Otto, 2005). Governments or non-governmental organizations (NGO) can create the infrastructure necessary for local farmers and customers to interact. Establishing a program at the farmers' market to facilitate the use of electronic benefit transfer (EBT) cards (these cards are part of the federal system that replaced food stamps) has been shown to increase market patronage.

Government agencies including school districts and colleges can dramatically increase the market for local products by requiring that a minimum portion of the food catered or served by them are from local sources. The Woodbury County Board of Supervisors in Iowa took this action and created an annual market worth nearly \$300,000 (APA, 2007).

Access

Economic development agencies, Cooperative Extension Services, or NGOs such as Growing Power, can encourage new business development through training and technical assistance in production, processing, marketing, distribution, tax, labor, and environmental rules (APA, 2007). Training and technical assistance is important since about 25% of those who begin local food businesses do not have previous experience in agriculture (Woods, 2009). Cities and counties can establish low interest loan pools to fund capital improvements to get businesses started or to help them expand.

Partnerships

As discussed throughout this issue of *Rural Connections*, local food hubs are thriving in the U.S. and local agricultural enterprises find that partnerships benefit the customer and on-farm sales. Working together, growers sell the products of

Figure 1. Housing for owners and workers around interior growing grounds. Photo simulation.

Currently, an "agricultural" land-use designation is treated as transitional land intended for future urban development. This immediately increases the value of the land, its taxes, and infrastructure expectations. Since proximity is important, agriculture within the city should be permitted by right, instead of as a conditional use (Figure 1). Furthermore, implementing a transfer of develop rights from agriculture parcels to development parcels will preserve local food capacity by protecting the land from real estate speculation and tax increases that would eventually eliminate all local farming from within the city. There are many other planning measures adopted by communities that encourage local food businesses including discounted water rates, permitting rooftop greenhouses, increasing the number of hens allowed within city limits, mixing community agriculture into all zones with regulations controlling the use of pesticides, noise, dust, and stormwater.



Figure 2. One-acre organic farm operated by Elizabeth Taylor.



other local producers so the customer can procure a wider range of goods, including eggs, honey, soap, flowers, bread, cheese, fruits and vegetables, etc., from a single outlet. Another partnership advantage of local food hubs is self-financing of expansion or start-up businesses that expand the capacity of the group.

Waste Management

Community's considering land use permitting agricultural production need to consider the treatment of stormwater runoff and solid wastes to avoid conflicts with neighbors and to maintain a clean environment. Effective treatment in vegetated swales or infiltration basins removes nitrogen and bacteria from water allowing limited reuse. Similarly, composting of organic waste and reuse leads to efficiency and lower input costs. Since local agriculture is highly visible, permanent plantings to form screens and buffers from the waste treatment need to be required by ordinance to contribute to the open space system, wildlife biodiversity, and aesthetics of the city.

Direct Farmer-to-Consumer One-Acre Farm

Although the number of local farms is rapidly increasing, they

are concentrated in metropolitan (50%) and adjacent rural counties (30%). In more remote rural towns, a local food hub may need to consider a combination of programs to be profitable. These could include farm-to-school contracts, sales to intermediate buyers, and direct-to-consumer sales. There are numerous instances, however, that small farm operations can support the farmer and a community. Take Elizabeth Taylor for example. For 20 years, Ms. Taylor has been supported almost entirely through the direct sale of her produce to a community of about 24, 000 people. She has produced 45 varieties of organic vegetables and salad greens on her one-acre organic farm located approximately 50 miles north of Moscow, Idaho (Figure 2).

Spatial Distribution

The location of community agriculture need not compete with urban development for space. Most towns own land that remains undeveloped for many years and other government agencies have lands that can be managed for multiple uses. These lands can be leased to farmers or provided as a farming incubator to establish businesses and test crops or horticultural methods. Figure 3 illustrates that flood plains can

Figure 3. Local organic farming with runoff treatment within the flood plain. *Photo simulation.*

Along the community growth limit line (area of impact line) community agriculture provides a buffer between urban development and commodity agriculture in the county. This planning scheme can help defend the town from suburban and exurban sprawl that consumes prime agricultural land and sensitive habitat.



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be used, especially for organic agriculture. If excess nutrients and sediment are prevented from entering the river and wildlife can pass along the river edge then organic agriculture can be a positive land use.

Residential development features little visual screening or useable open space. Figure 4 illustrates remedies of these negative consequences while providing ecosystem services. Plans for community agriculture focus on the town-county interface where 1-10 acre parcels are available. However, farms surrounded by mixed-density housing occupied by the farmers and their employees (Figure 1) integrate uses positively, particularly when restored brownfield sites, such as sawmills or landfills, can be repurposed.

Urban agriculture can be partnered with adjacent stormwater management facilities where water can be captured for reuse. Similarly, associations with biofuel, willow or poplar plantations, and urban forestry are beneficial in windy or semi-arid climates. Agriculture can also serve as a buffer for wildlife corridors or habitat, sports fields, and trails.

Conclusion

Elected officials and economic development officers in rural towns can foster new agriculture businesses through planning changes. Citizens can do their part by initiating proposals suggested above and supporting new businesses with their patronage. Local production and sale of food increases food security and social capacity, improved nutrition, reduced energy use, and even educational opportunities. For these and the clear economic benefits community agriculture should be a vigorously promoted diversification strategy in towns and near metropolitan cities. ●

Figure 4. Community agriculture provides open space.

This image suggests orchard or nut trees flanking a community garden (foreground) and market agriculture.

