

Horticultural auction markets: Linking small farms with consumer demand

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Abstract

Small farmers face more challenges in farming than ever before. Examples include competition and consolidation within the global marketplace and low and unpredictable product prices. Evaluation and development of alternative market outlets is one means of helping small farms to become more economically sustainable. From 2000 to 2020 the US population is expected to increase by between 50 and 80 million people. A concomitant increase in consumer demand for local, fresh, specialty and organic produce is also projected. Alternative market outlets that skillfully link local or regional small-scale production with evolving consumer demand are currently lacking. We hypothesize that there is considerable potential for helping small farmers sustain or improve their economic position and fulfill consumer needs by exploiting these connections in the marketplace. This investigation draws from the literature to ascertain whether horticultural auction markets may provide such a link for small farms. The paper characterizes horticultural auction markets using current and historical examples, discusses marketplace changes with special reference to consumer demand, and appraises the value of this market model with respect to the dual challenge of meeting both farmers' and consumers' needs. Current marketplace research and characteristics suggest measured optimism for horticultural auction markets to provide a small farm–consumer link.

Key words: alternative markets, consumer demand, cooperatives, economic sustainability, horticultural markets, market management, produce auctions, small farms

Introduction

Small-scale farmers face more challenges in farming than ever before. Competition and consolidation in the global marketplace, low and unpredictable product prices, and increasingly expensive agricultural inputs are three examples of these challenges. In total, they contribute to a general malaise in the small farm community with respect to short-term profitability and long-term economic sustainability. Some innovative growers maintain economically healthy operations by diversifying their crop enterprises and product varieties, extending production seasons, selling locally based and value-added products, and marketing fresh produce direct to consumers. While direct sales have provided some relief to small-scale farmers in recent years, some farmers are denied access because venues are filled or simply unavailable. Alternative markets must be evaluated and developed to help growers maintain or improve economic sustainability.

Research indicates that fruits and vegetables, including locally grown specialty and organic produce, will be needed to satisfy the appetite of expanding and changing segments of the US population^{1–6}. Cook² asserts that 'there is potential for more strategic consumer-specific fresh produce marketing'. Retail establishments exhibit some preference for local produce to meet consumer demand for freshness, and to demonstrate commitment to local communities⁷. Also, when surveyed, the majority of organic farmers identified local sales as being a preferred, though underutilized, marketing method¹. Alternative market outlets that skillfully link local or regional small-scale production with evolving consumer demand are currently lacking.

We hypothesize that there is considerable potential to help small farmers sustain or improve their economic position and fulfill consumer needs by exploiting these connections in the marketplace. Horticultural auctions were selected as the focus for this investigation because

of their ostensible success in providing income, over time, to a subset of farmers in the eastern US and internationally. It is not clear, however, whether this market model is transferable to other areas in the US, or if it can persist in an evolving marketplace. This paper will, through a review of the literature, characterize horticultural auction markets, drawing on both existing and historical perspectives. After this description, marketplace changes, with special reference to demographics and consumer demand, will be addressed. Finally, the auction market model will be appraised for its potential to provide small farmers with a market alternative that responds to the dual challenge of meeting both farmers' and consumers' needs.

Characteristics of Horticultural Auctions

Market function

By definition, horticultural auctions are businesses that function to facilitate or mediate sales of product between sellers and buyers⁸. Barendse⁹ and Contini and Paz¹⁰ explain that horticultural auctions, using a competitive bidding process, provide growers with the highest possible price given existing market conditions. Kee¹¹ indicates that an important goal is to 'provide a fair forum for growers and merchants to make a trade and maximize profit'. Horticultural auctions have also been shown to help small farmers remain economically viable and enhance family and social position¹²⁻¹⁴. Ultimately, auction markets transfer product ownership from farmers to wholesalers, distributors or retailers⁸.

Product transfer is accomplished through 'price discovery', a mechanism that purports to give growers some control over product price. Price discovery seeks to reveal the highest price that buyers will pay for a product, and is different from the 'price taker' mechanism, through which growers exert little or no control over product prices. Price discovery is achieved in auction markets through one of two methods: (1) a 'bid-down' or descending clock system, which is characteristic of Dutch auctions; and (2) a 'bid-up' or ascending clock system^{8,10}, which is more characteristic of US systems. The former ensures speed of sales and rapid movement of product through markets, while the latter tends to slow movement of product through markets. Regardless of price mechanism, it is important to note that supply and demand conditions remain the foremost determinants of product prices.

Secondary, though no less important, functions of auction markets include the maintenance of quality and package standards and the coordination of transportation and payment for product. Some auctions also function as venues for information sharing, education and social gatherings¹²⁻¹⁴. In many cooperative auction scenarios, growers produce, harvest, sort, grade and pack the saleable product for market. In some cases, however, auctions may sort and grade the product into larger saleable lots with consistent

quality⁹. This may assist buyers in that it precludes the need to perform further sorting, grading or packing. Once a sale is made, and depending on market location and characteristics, products are transported to consumption centers, with costs generally paid by the buyer.

Business and financial structure

A market's business and financial structure, as well as its policies and procedures, can vary greatly. Structure is based on varying principles that depend on the intentions of the market founders as well as the needs of the participants, and may therefore emphasize different tasks and responsibilities. The literature highlights three major business structures: (1) cooperative or grower member owned; (2) private or corporate ownership; and (3) government supported or mandated. In some cases, auction markets are supported by growers, government and the community alike¹².

Most auction markets, regardless of structure, are governed by a Board of Directors, made up of qualified grower members, owners and/or other industry representatives^{11,13-15}. In addition, managers are often hired to coordinate market activities, manage finances, supervise other employees and act as a liaison between the Board of Directors and grower members or owners. Strong management is critical to market operations and skillful handling of all operations.

Characteristics of the actual physical facility can vary widely depending on location, equipment, number and volume of products marketed, and transportation needs. Tubene and Hanson¹⁴ report that average size of buildings for auction markets catering to Pennsylvania-based Amish-Mennonite communities was 16,000 square feet. Equipment included cooling systems, freezers, forklifts, carts and other miscellaneous support implements. No similar characteristics were reported for markets located in different part of the country or internationally. Other cost considerations include number of employees (including management), level of technology and optional services that may be offered. One cooperative auction manager estimated that the cost of conducting an auction business was approximately 12 to 13% of sales¹⁵. Several auction markets reported that, on average, their operations became profitable during their fourth year in business¹⁴. After covering business expenses, profits from auction markets were either returned to the business to expand and/or strengthen the operation, or distributed to grower members or owners.

Financing, or access to capital, is essential to the start-up activities of horticultural auctions. Auctions may initially be financed by selling stock or shares in the business, with private capital investments, or through grant and loan programs. Later, auctions are sustained by commission-based income and strong financial management. Sellers generally pay auction markets a commission, which can range from between 8 and 24%, depending upon a market's policies, as

well as whether sellers are members or non-members¹³⁻¹⁶. One example is that of Kentucky's Fairview Produce Auction. To raise enough capital to purchase land and construct an appropriate building to house the market, stock shares of \$US1000 each were initially sold to 70 grower members. Because costs ran over the original start-up projections, a second stock offering was put forward to an additional 18 growers¹³. Once up-and-running, grower members paid on average 10% of sales to market produce at the site.

Depending on market policies, all produce brought to market may be sold on that day, or may be rejected or returned because of quality problems or lack of an interested buyer^{13,14}. If it is mandated that all produce be sold on market day, produce may be sold at a less-than-desirable price. In other cases, minimum price schemes and government support of produce sales, thus payments to growers, are guaranteed, assuring that growers receive income for produce brought to market^{8,16,17}. With respect to buyer payments, markets may operate on a cash-only basis¹⁵ or offer credit to buyers¹⁶. In the former case, this can pose some constraints with respect to attracting buyers; however, it can also assure prompt payment to growers¹⁵. In the case of granting buyer credit, this may negatively impact both the market and its ability to pay grower members or owners¹⁶. Ultimately this may affect production decisions and cause fluctuations in product availability, price and income, with the end result of eroding the financial position of both a market and its growers¹⁶.

Electronic auctions

Some auction markets are expanding their repertoire of business offerings by experimenting with, and/or using, electronic trading technology. This type of technology is touted as a way to increase efficiency in sales and movement of produce, as well as separating the physical trading process from product information, ultimately permitting approaches to customized trading that meets the needs of different buyers¹⁸.

Both US and Canadian auction markets have expressed an interest in electronic auction systems^{10,11}; however, the literature is not clear as to whether these systems have been fully developed and/or are currently in operation. In contrast, several experimental electronic auctions have already been introduced into the Dutch system, to varying levels of success¹⁸. While some electronic models have failed, at least one system, Tele Flower, founded in 1995, appears to be successful, reporting gross sales of \$US75 million in 2001, with a growth rate of 15% per year^{18,19}. Important considerations include the volume of trade, financing and payment for produce, and seller and buyer integrity. The last two considerations are especially important, given the separation of produce mentioned above. As with any business, in order to survive, electronic markets must organize and implement strong market plans and policies, and recruit expert management¹⁰.

Historical Perspective

Dutch cooperative auction markets

The Dutch have been dominant players in the world floral trade for centuries¹⁹. They likely introduced the concept of bidding for commodities through an auction system, starting first with fresh fish, followed by flowers, and, over 100 years ago, with horticultural products^{8,9}. At the time, conditions were right for merging horticultural production and auction selling with grower cooperatives. Cooperative auction markets quickly caught on as both flower and vegetable growers, weary of competition and eroding commodity prices, formed cooperatives and organized auctions to sell their products⁸. The industrial revolution, a concomitant increase in demand for luxury goods, and transportation improvements⁹, as well as inefficiencies in the wholesaling system⁸, helped spur the development of cooperative auction markets.

Meulenberg⁸ and Barendse⁹ report that during the early stages of organization, auction markets operated locally or regionally with no national coordination. Grower members were not obliged to sell all of their product through an auction market. This requirement was imposed for the first time in 1901 by a vegetable auction. Both floral and horticultural cooperative auctions showed dramatic increases in number until 1940, becoming the major marketing institution for Dutch horticultural products⁸. The cooperative auction market system received added support during periods of war and crisis, when the government specified that all horticultural sales take place through this market venue.

More recently, increased demand for a diversity of fresh fruits and vegetables has sustained the cooperative auction market structure. However, these markets appear to have followed the larger trend towards consolidation, with total market numbers decreasing. Interestingly, consolidation may have stimulated some competition between buyers because fewer markets exist. At the same time, this has enabled buyers to purchase produce with greater ease from more than one auction at a time⁸. By 1987, approximately 80% of all fruits and vegetables, 92% of flowers and 65% of potted plants were marketed through cooperative auctions in The Netherlands⁸. As an example of sales, in the year 2000 it was estimated that 7000 commercial growers and 1700 buyers conducted business at the world famous Aalsmeer Flower Auction, with estimated gross sales of \$US1.8 billion¹⁹. Similar sales statistics were not found for vegetables and potted plants sold in Dutch auctions.

Other foreign horticultural auction markets

Other than The Netherlands, the literature shows that several countries have operated agricultural auction markets, although historical data and market characteristics are scant. Canada, Turkey, France and Japan have all had at least one agricultural auction market at some point in time. The literature is not always clear about when the markets

began operation or whether these markets still exist. For example, the literature indicates that the Canadian Ontario Flower Growers' Cooperative Limited operated between 1972 and 1980, with approximately 10% of all Ontario flower sales flowing through the market. During this time, sales increased from \$US1.1 million in 1972 to \$US5.1 million in 1980, the last year for which statistics in the literature were found¹⁰. The floral trade in Turkey has been partitioned into internal and external market channels. The internal trade has been coordinated by two major cooperative auctions, which are centralized in Istanbul and sell approximately 95% of all domestic flowers¹⁶. However, the literature on the Turkish auction system does not report details on the history of the cooperatives or sales of marketable product. In France, a vegetable auction market was in operation in the area of Marmande between 1974 and 1991, the last year for which information was found in the literature²⁰. Sales figures and diversity of produce were not reported, nor was more specific information about the market itself. Japanese wholesale markets, under government law originally enacted in 1923 and modified in 1971, were required to sell all agricultural produce through an auction system¹⁷. The literature does not elaborate on specifics of produce, volume or price. Further, none of this literature discusses market relationships specific to small farmers.

US horticultural auction markets

Very little literature exists that documents the history of horticultural markets in the US. Perhaps the most well known is New Jersey's Vineland Produce Auction, a cooperative that handles a wide range of vegetable and fruit crops each year²¹. Founded in 1930, and still in operation, the auction boasts approximately 400 grower members (many of whom are small) and 60 buyers, who meet to conduct business each year. Yearly gross sales are estimated to be roughly \$US50 million.

Within other parts of the US, the literature indicates that a considerable number of horticultural auction markets have existed in the past, or currently conduct business, in Pennsylvania, Ohio, Wisconsin and Kentucky. Formed in the 1980s and 1990s, they are most often operated by small farmers within the Amish and Mennonite communities^{12-14,22}. These markets sell a variety of seasonal horticultural commodities, including fruits, vegetables, flowers and potted plants, to various groups of buyers, including wholesalers, distributors and retailers. Survey results from a study by Tubene and Hanson¹⁴ show that annual gross sales averaged \$US3.5 million for the six auctions that reported sales figures. The average number of sellers was reported to be 300 (50 on a regular basis), with the average number of buyers being 200 (90 of whom are regular).

The literature also describes Delaware's Laurel Auction Market, a cooperative that was founded in 1940 and is still in limited operation today. Handling a narrow range of products, primarily watermelons, in 1998, the last year for

which statistics are available, gross sales were \$US3.8 million. The California Floriculture Growers Association (CFGGA), a San Diego-based cooperative floral auction, was formed in 1982 as a protective response from growers to a surge in imported flower production and sales¹⁵. In business for at least 12 years, the cooperative facilitated sales of a diversity of floral products between grower members and retail buyers. Sales figures were not reported, nor is the business currently in operation.

Changing Market Conditions

Price discovery to market management

Horticultural auctions generally understand the need for cohesive, comprehensive marketing plans for long-term sustainability. Over time, Dutch auctions have recognized the need to evolve from the long-standing price discovery model into a broader 'market management' framework⁸. While this may appear straightforward, markets ensconced in traditional 'ways of doing business' may not be able to deftly respond to changing conditions and consumer preferences. For a business to secure and sustain a strong market position, management must continually identify, assess and target its preferred market segments, evaluate existing and potential constraints, and plan strategically for the future. For horticultural auctions this depends to some extent on a market's past performance, its level of expertise, its power in the marketplace, and the ability of management, grower members (or owners) and the Board of Directors to operate effectively as a unit⁸. Market management, which can be viewed as an expansion of market activities and services, is seen as critical to remaining responsive to changes in the horticultural and food industries.

Demographics and consumer demand

There is considerable research highlighting social and structural 'farm to fork' changes within the US produce industry^{1,2,4-7,23,24}. Two notable themes are demographic changes and concomitant changes in consumer demand. More specifically, between 2000 and 2020, the US population is expected to grow by between 50 and 80 million people, with food expenditures increased by 26%²⁵. Within this growth, Hispanic and Asian populations will increase, with the Hispanic population recording the largest gain^{2,6}. The population of aging, health-conscious consumers ('baby boomers') will also increase. Finally, incomes are projected to rise during the same time period.

These demographic changes point toward changes in produce consumption. First and foremost, per capita consumption of fruits and vegetables are expected to increase by 26 and 20%, respectively²⁵. More specifically, preferences for such attributes as fresh, organic produce are expected to rise^{1,2,4}. Demand for specialty produce to meet ethnic and dietary preferences will likewise increase^{2,6,25}. Interestingly, highest average household expenditures for fresh produce are in the western US, which may in part

be explained by higher concentrations of Hispanic and Asian populations². Davis and Stewart³ also suggest that consumers will want to purchase floral and other value-added horticultural products along with fresh produce for convenient 'one-stop shopping'. Unquestionably grower-buyer relationships will play an important role in this market evolution, in that buyers will take their cue from consumers and source produce to ensure alignment with demand.

Appraising Horticultural Auctions

Indicators for success

Indicators for success of horticultural auctions include a committed cohort of sellers and buyers, strong purpose and management, and access to capital. Dutch cooperative auction markets, as well as some private or corporate-owned US auctions, illustrate the potential for success over the long term. With respect to Dutch auctions, Barendse⁹ states that cooperation among growers, with the added need of market assistance, competing buyers, and favorable market conditions, have all worked to make these markets successful. Appropriate production regions and conditions, as well as coordinated market activities, are also stated as positive attributes^{16,17}. Finally, fair prices and prompt and consistent payments to growers have fostered success.

More recently, established US horticultural auctions report optimism with respect to business operations and economic development for small and family farmers¹²⁻¹⁴. In Ohio, the auction market has become an efficient and accepted part of local marketing efforts¹². Sellers (57%) and buyers (64%) indicate that products can be bought and sold with relative ease. Roughly 38% of growers have expanded the diversity and volume of products offered. In addition, 68% of sellers and 96% of buyers felt that they were afforded fair prices. Ernst¹³ indicates that auction markets enable farmers to spend more time in production and less time marketing. Blaine et al.¹² indicate that fruit and vegetable auctions have potential for economic development within farmer communities, especially those in close proximity to large commercial centers and corresponding suburbs. These conditions help to make auctions attractive market venues. In contrast, Tubene and Hanson¹⁴ make a case for auction markets being successful in rural areas where growers typically do not have access the highly populated centers and terminal markets. Tubene and Hanson¹⁴ conclude that auctions might be a viable market alternative for small farmers.

Challenges acknowledged

Over time, several challenges have been reported that may undermine the ability of existing auction markets to remain successful or new markets to begin. These challenges include resistance to introduction (auction markets may be difficult for some to understand), attracting and retaining strong buyer and grower cohorts, price volatility and/or low

prices, poor grading, lack of consistent volume of product, competition (side deals between sellers and buyers), and timely payments to growers^{9,14}. Contini and Paz¹⁰ further state that unstable prices and a lack of competition among buyers may adversely affect returns to sellers. Barendse⁹ believes that growers and buyers who already demonstrate strong market relationships may be reluctant to change their way of doing business. Indeed, there may be little reason to do so. Finally, Barendse⁹ argues that it is not easy to start a cooperative auction market and, more importantly, in some areas attempts to introduce these markets have failed.

Linking small farms with consumer demand

The United States Department of Agriculture's (USDA) National Commission on Small Farms envisioned 'market linkages that would strengthen the competitive position and sustainability of small farms while at the same time fueling local economies'²⁶. In appraising horticultural auctions, past literature demonstrates some ability to provide such a link. Auction markets have been most successful in a seller's market, where supply is thin and competition among buyers is strong. In contrast, in a buyer's market, where supply is plentiful and quality high, sellers must satisfy buyer demands. This can markedly affect price and market position. Under these conditions, auction markets may not be the best alternative to consider.

One could make the case that the produce industry is currently a buyer's realm. Research on changing US demographics and consumer preferences instead characterizes the marketplace as consumer-driven^{3,5,6}. As Davis and Stewart³ clearly state 'consumers will dictate the future course of the food system'. We concur, and suggest that small farmers are uniquely positioned to capitalize on current and projected marketplace characteristics. Horticultural auctions have the potential to mutually benefit both small farmers and consumers by providing a valuable link between local or regional production and marketplace preferences. In today's consumer-driven marketplace, quantity (or supply) is not king. Rather, demand entails a higher level of sophistication, including quality and diversity of produce²⁵. Growing ethnic minority Hispanic and Asian populations in the US demand increasing volumes of specialty fruits and vegetables. And, arguably, a portion of overall market demand also calls for increased product integrity, that is, knowing where and how produce is grown, and what the long-term community and environmental impacts might be¹. Continued focus on freshness, and specialty and organic produce, is likely, with growing demand for floral and other value-added horticultural products.

Optimism for the horticultural auction model must be tempered with caution, however. Ultimately, for such markets to be successful, they will need to be skillfully constructed by first performing a thorough regional or locally based market analysis, identifying a strong cohort

of growers and/or owners, securing adequate capital, grants or loans, and recruiting top-notch management (including field and market support). Finally, even in a consumer-driven marketplace, the grower-buyer relationship will remain critical to facilitating market activities, and will therefore need to be cultivated and sustained.

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