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 population1–6. Cook7 asserts that there is potential for more strategic consumer-specific fresh produce marketing7. 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 for helping 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 interna-
tionally. 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 horti-
cultural auction markets, drawing on both existing and
historical perspectives. After this description, marketplace
changes, with special reference to demographics and con-
sumer 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 buyers. Barendse and Contini and Paz explain
that horticultural auctions, using a competitive bidding
process, provide growers with the highest possible price
given existing market conditions. Kee indicates that an
important goal is to 'provide a fair forum for growers and
merchants to make a trade and maximize profit'. Horti-
cultural auctions have also been shown to help small farmers
remain economically viable and enhance family and social
position. Ultimately, auction markets transfer product
ownership from farmers to wholesalers, distributors or
retailers.

Product transfer is accomplished through 'price dis-
cover', 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
the following methods: (1) a 'bid-down' or descending clock system,
which is characteristic of Dutch auctions; and (2) a 'bid-up'
or ascending clock system, 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 deter-
ninants 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 gather-
ings. 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
quality. 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 character-
istics, 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 partic-
ipants, 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) govern-
ment supported or mandated. In some cases, auction markets
are supported by growers, government and the community
alike.

Most auction markets, regardless of structure, are
governed by a Board of Directors, made up of qualified
grower members, owners and/or other industry representa-
tives. 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 Hanson 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 dif-
f erent 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 sales. Several auction
markets reported that, on average, their operations became
profitable during their fourth year in business.
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 pro-
grams. 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
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well as whether sellers are members or non-members. 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 growers. 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. 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. With respect to buyer payments, markets may operate on a cash-only basis or offer credit to buyers. In the former case, this can pose some constraints with respect to attracting buyers; however, it can also assure prompt payment to growers. In the case of granting buyer credit, this may negatively impact both the market and its ability to pay grower members or owners. 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 growers.

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 buyers.

Both US and Canadian auction markets have expressed an interest in electronic auction systems; however, the literature is not clear as to whether these systems have been fully developed and/or currently in operation. In contrast, several experimental electronic auctions have already been introduced into the Dutch system, to varying levels of success. 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. 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 management.

Historical Perspective

Dutch cooperative auction markets

The Dutch have been dominant players in the world floral trade for centuries. 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. 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 products. The industrial revolution, a concomitant increase in demand for luxury goods, and transportation improvements, as well as inefficiencies in the wholesaling system, helped spur the development of cooperative auction markets.

Meulenberg and Barendse 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 products. 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 time. By 1987, approximately 80% of all fruits and vegetables, 92% of flowers and 65% of potted plants were marketed through cooperative auctions in The Netherlands. 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 billion. 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 are available, gross sales were $US3.8 million. The California Floriculture Growers Association (CFGCA), 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 sales. 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’ framework. While this may appear straightforward, markets enconced 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 unit. 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. 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%. Within this growth, Hispanic and Asian populations will increase, with the Hispanic population recording the largest gain. 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%, respectively. More specifically, preferences for such attributes as fresh, organic produce are expected to rise. Demand for specialty produce to meet ethnic and dietary preferences will likewise increase. Interestingly, highest average household expenditures for fresh produce are in the western US, which may in part
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be explained by higher concentrations of Hispanic and Asian populations. Davis and Stewart 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, Barendse 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. 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 farmers. In Ohio, the auction market has become an efficient and accepted part of local marketing efforts. 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. Ernst indicates that auction markets enable farmers to spend more time in production and less time marketing. Blaine et al. 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 Hanson make a case for auction markets being successful in rural areas where growers typically do not have access to the highly populated centers and terminal markets. Tubene and Hanson 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. Contini and Paz further state that unstable prices and a lack of competition among buyers may adversely affect returns to sellers. Barendse 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, Barendse 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'. 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. As Davis and Stewart 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 produce. 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 be. 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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