



A Marketing Systems Approach to Removing Distribution Barriers Confronting Small-Volume Fruit and Vegetable Growers

by Charles Hall, John Brooker, David Eastwood, James Epperson, Ed Estes, and Tim Woods

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Fruit and vegetable growers have always faced dynamic, rapidly changing markets because of underlying factors such as consumer tastes and preferences, weather patterns, regulatory legislation, insect/disease infestations, production costs, and marketing logistics. In addition, evidence suggests that significant changes in market structure are occurring in the fresh fruit and vegetable industry in that the flow of produce from farm to consumer follows a different path than it once did. Rather than making heavy use of the wholesale terminal markets, retailers (large ones in particular) are purchasing a larger portion of fruits and vegetables directly from shippers. Farms and supermarkets alike are expanding, while it appears that the wholesaler sector is decreasing in size. Alternative forms of pricing, such as rebates, slotting fees, and other kinds of allowances, are becoming more common. Some industry sources suggest that mergers at the retail level are driving many of these changes.

In light of these structural changes occurring in the produce industry, fruit and vegetable growers find themselves in a continual cost-price squeeze as the downward pressures on price (resulting from the increased purchasing power associated with fewer produce buyers) forces growers to increase their volumes in an attempt to minimize per-unit production and marketing costs. Today's produce transactions are very different from the traditional emphasis/focus on f.o.b. commodity-oriented pricing, with growers competing for shelf space through "ad" pricing. Instead, growers must offer value-added services and prod-

uct traits demanded by produce buyers, such as: (1) growing varieties that have been specifically designed/developed for taste and nutritional qualities; (2) using cooling technologies in the field, packing shed, and during transport to reduce product temperatures, enhance quality, and increase shelf life; (3) offering on-time and just-in-time delivery schedules, sometimes involving multiple deliveries per week; (4) customizing palletizing, packaging, and product labeling requirements; (5) tracking and traceability from the field to the site of sale; (6) producing in a manner that is "safe," that is, free from microbial and pesticide contamination; (7) developing fresh produce contracts, sometimes on a multiple-year basis; and (8) offering a year-round supply of diverse produce items.

Although these services do tend to act as a means for growers to differentiate themselves from the competition, they also increase costs dramatically, further eroding profits, especially for small and mid-sized fruit and vegetable growers. Volume and per-unit costs are inversely correlated, so unless sufficient volumes can be produced and/or marketed by the grower (or grower organizations) in some vertically coordinated fashion to reduce per-unit costs, the chances of long-term survival are much lower for independent smaller-volume growers.

In the midst of these structural changes, facilitating the roles of key produce industry participants is more involved and crucial than with other crops or livestock, particularly because of the seasonality of fruit and vegetable production, the perishable nature of these products, and the con-

stantly shifting supply from produce regions. Historically, Extension Services, Experiment Stations, and state Departments of Agriculture have been actively involved in the marketing of fruits and vegetables. Production-related research has been conducted over several decades regarding best management practices associated with fruits and vegetables. Research in agricultural economics has focused on the costs and returns of growing, packing, and processing operations; market windows; and competitive position studies. The Cooperative Extension Service has provided educational programs and assistance in facilitating market development. Several types of marketing support have also been provided by state Departments of Agriculture. Notably, several Southern states have provided coordinated development of public marketing facilities and marketing activities. The extent of their involvement seems to be positively correlated with the growth of fruit and vegetable production in their respective states. But none of the extant research viewed produce market development from a small versus larger grower perspective and the ways these operations contributed to the development of market infrastructure and channels from the farm gate to the consumer.

Georgia and North Carolina rank among the top ten U.S. states in income obtained from fruit and vegetable production. The USDA ranks Georgia as third in the United States in harvested fresh vegetable acreage and fifth in value. North Carolina ranks first in the United States in production of sweetpotatoes, flue-cured tobacco, and turkeys raised, while the state's growers are ranked among the leading five states in cucumbers for pickle production, bell peppers, strawberries, blueber-

ries, and snap beans. In Georgia and North Carolina, harvested fruit and vegetable acreage usually exceeds 300,000 acres annually, with sweetpotatoes, watermelons, sweet corn, tomatoes, and sweet onions identified as important sources of horticultural income. In Kentucky and Tennessee, fruit and vegetable sales are relatively small sources of total farm income for most growers, and therefore only limited information is available about horticultural growers. Surveys indicated that, on average, about 10,000 acres of fruits and vegetables were grown in Kentucky annually. The Tennessee fruit and vegetable industry is somewhat larger than Kentucky's, but it is probable that Tennessee growers collectively farm fewer than 60,000 acres of fruits and vegetables each year.

This paper reports on a recent assessment of the comparative produce market development activities in the states of Georgia, Kentucky, North Carolina, and Tennessee because of commonalities such as the prevalence of small farms, the reliance on tobacco as a cash crop, and the comparable growing seasons in all four states. Each state has historically had a large number of small-volume growers, but production in Kentucky and Tennessee has not kept pace with the other two states. To examine the reasons for this discrepant performance, separate surveys were conducted of Extension Services, Departments of Agriculture, growers, and produce marketing agents and market managers.

Extension

County agents with horticultural responsibilities were personally interviewed in each state about produce-related programs, professional training and development activities, and

the need for additional support [respondents $n = 19$ KY; 20 NC; 14 GA; 12 TN]. Extension agents were asked to indicate the relative importance of produce-related information and services being demanded by growers. Overall, there was a fair amount of agreement among the states with respect to the relative positions of the service areas. Pest control was most frequently requested in all three states. Soil tests, market development, and variety recommendations comprised a group of information requests that had comparable overall scores after pest control. The county agents in all four states indicated they had offered programs in establishing or managing farmers' markets; pesticide certification; market pricing; and meetings, short courses, or conferences. North Carolina and Georgia had provided assistance in all the areas listed. Neither Kentucky nor Tennessee had developed programs in agritourism, direct sales to schools and restaurants, or marketing weather-damaged produce. Unlike their North Carolina and Georgia counterparts, Kentucky respondents had not provided information on packaging or vegetable field days and Tennessee respondents had not conducted educational tours of other production regions.

All four states have implemented comparable staffing strategies. However, the divergence in the number and size of produce operations has resulted in quite different numbers of Extension agents with produce responsibilities. In those counties in which there is sufficient activity, there are horticultural Extension agents. Staffing levels in Kentucky and Tennessee were several times lower than those for Georgia and North Carolina. The latter pair of states also had industry-oriented

training programs for new hires that reflected demand in counties where produce production was high. North Carolina had horticultural agents in every county. The simultaneity encountered here was that fewer and smaller produce operations led to lower demand for Extension programs with respect to not only staffing, but also in terms of production, post-harvest handling, and marketing support.

Growers

Produce growers in each of the states were also surveyed [respondents $n = 385$ KY; 87 NC; 198 TN]. Kentucky and Tennessee farmers tended to have smaller operations in terms of acreage, produce sales, and farm income than the typical Georgia and North Carolina counterparts. Growers were asked to estimate the percentages of their sales that went through each of the possible market outlets. The weighted averages by state for each type of outlet were calculated, and both Tennessee and Kentucky had significantly higher concentrations of direct market sales than Georgia and North Carolina. Tennessee's largest outlet share was "wholesalers," while North Carolina was almost evenly split between "direct to retailers" and "wholesalers" and had the highest average for "direct to retail store." The share for Tennessee's "wholesalers" was larger than the other two states, and Kentucky had the largest share of weighted sales going to "co-ops." Notable among the percentages is the "shipper-packer" share for North Carolina, which was 17.4% versus less than 1% for Kentucky and Tennessee.

The extent of North Carolina and Georgia's produce activity vis-à-vis Kentucky and Tennessee, was

consistent with the produce-related behaviors of the typical growers in the states' samples. The percentages of each state's grower respondents indicating interest in expanding their operations were 58% for Kentucky, 69% for North Carolina, and 53% for Tennessee. Respondents were given a list of 14 factors that could limit expansion and were asked to indicate the extent to which they were limiting. The rankings of the average scores were similar across states, with "labor availability, market outlets, and prices received" being the three highest factors stated, and "equipment, transportation, and credit availability" the lowest. North Carolina growers tended to indicate that "prices received, market outlets, and cooling" were limiting, which is consistent with these growers having greater interaction with the commercial distribution system. Tennessee growers were more likely to have indicated "disease control" was a problem.

In general, the level of grower activity in North Carolina and Georgia greatly exceeds that found in Kentucky and Tennessee. North Carolina and Georgia growers have created "critical mass" in terms of volumes and interest in marketing, compared to Kentucky and Tennessee. For example, when asked to indicate the organizations or people they would consult with about marketing a new crop, the states had similar proportions of growers who stated they would first ask "other growers," closely followed by "Extension." The only exception was "the co-op," for which Kentucky and North Carolina were more likely than Tennessee growers to use as a market information source.

Produce Marketing Agents

We interviewed representatives from "marketing agent" firms, defined as that subset of wholesalers who conducted the bulk of their transactions in the four-state area and were in business primarily to buy and resell fruits, vegetables, and melons [respondents $n = 10$ KY; 19 NC; 9 GA; 35 TN]. The number of these intermediaries that operate in the respective states is one important indicator/measure of the extent of market development in each state. Secondary references (e.g., the Red Book and Blue Book) indicate that Georgia and North Carolina have considerably more marketing agents than Kentucky or Tennessee, which is reflective of the greater orientation toward the commercial produce-marketing systems in those states. Important functions that these intermediaries provide include buying in bulk quantities from growers, grading and repacking, fresh/canned/frozen processing, refrigerated storage, and sales and transport to independent grocers, institutions (e.g., hospitals, schools, etc.), restaurants, supermarket warehouses or retail sites, and other distributors. The ability of small independent growers to forge relationships with these agents is more limited in Kentucky and Tennessee. That is, the lower frequency of larger growers in these two states lowers the likelihood that smaller growers have had the opportunity to work with marketing agents. And, as noted in the next section, the scope of the activities at public markets in Kentucky and Tennessee exacerbates the problem.

Public Market Managers

To be included in the survey, these markets had to have a manager, be open for the entire harvest season,

have permanent buildings, and have received public financial support. Kentucky had no such market. Georgia had six, and North Carolina and Tennessee both had five of these markets. Managers of each of these markets were interviewed. All three states with public farmers' markets received some level of public financial support to cover operating costs, utilities, and/or capital expenditures, so none were completely self-supporting. Georgia was the only state in which utilities were subsidized. North Carolina markets received their support from the state. Georgia and Tennessee also obtained financial assistance from cities, counties, and development districts. Only one market (in Georgia) had received federal funds. Funding is a critical issue, however, and the success of the markets with respect to fostering the development of the produce industry from the farm through the retail levels varied by state. The results of these interviews revealed the importance of the inherent simultaneity associated with market development, and the synergy associated with having a *variety* of marketing activities occur at centralized locations.

Kentucky and Tennessee are similar in that there are no public outlets for produce marketing other than retail. Hence, there is little incentive for growers to provide adequate supply to attract stakeholders who are involved in other market channel activities, such as brokering, wholesaling, and repacking. On the other hand, Georgia and North Carolina have created facilities that encompass a range of produce-marketing activities, including retail. In addition, these markets have successfully encouraged complementary enterprises, such as food distribution and institutional suppliers (e.g., for school systems), to locate in close

proximity to these state markets. The variety of marketing activities encourages production because growers have alternative outlets available at centralized locations. Similarly, wholesalers, brokers, and repackers operating independently have the retail markets as backups to fill unexpected orders. Furthermore, retail vendors often look to the wholesale side of the market to fill in product shortages. This tends to offset the seasonal aspects of the retail activity, increase the range (diversity) of products offered at the market, and accentuate the appearance and perception of being a professionally run market. The breadth and scale of operations tend to be self-sustaining. The wholesale side of these public markets is successful in generating sales dollars and volume, while the retail side is successful in generating awareness and public support for the markets.

State Departments of Agriculture

Within each state Department of Agriculture, people responsible for fruit and vegetable marketing were interviewed. Georgia and North Carolina indicated the greatest numbers of their respective department's staff are assigned to fruit and vegetable marketing with 20 and 15 marketing specialists, respectively (not including market managers or assistant managers). Interestingly, several of North Carolina's Department of Agriculture staff are former Extension agents. Kentucky and Tennessee had considerably fewer personnel assigned to produce marketing with six and one staff persons, respectively.

In Georgia and North Carolina, a number of publicly funded farmers' market facilities were built. The state

of North Carolina built five public farmers' markets, while Georgia constructed 16 publicly funded community markets. Conversely, the states of Tennessee and Kentucky did not build a single farmers' market facility using state appropriations, although several city and county governments in Tennessee did construct community markets that serviced local produce and specialty crop growers.

Marketing services from Departments of Agriculture typically included fruit and vegetable directories of growers, packers, wholesalers, or brokers (several were also on-line Internet-based directories); state-focused generic promotional programs; trade show hosting and promotions; export promotions and reverse trade missions; farm-to-school programs where produce is sold and distributed to local school systems; and sponsorship of state farmers' markets and/or marketing centers.

The types of financial support offered to fruit and vegetable growers by the respective departments differed between North Carolina/Georgia and their Kentucky/Tennessee counterparts. Georgia and North Carolina provided funding for advertising, promotion, and market development grants; salaries of market managers (North Carolina even provided salary funds for market workers); subsidies to pay for the utilities of state farmers' market facilities; and organic third-party certification. Kentucky and Tennessee only provided grants for advertising and organic certification. Both North Carolina and Georgia reported an increase in funding over the last five years.

Publicly sponsored (through Departments of Agriculture) produce markets also play a key role in market development. Managers of all the

public produce markets (for which there were permanent buildings and utilities on the sites) were surveyed during 2001 to obtain a snapshot of the types of market channel activities present in each of the four states. Kentucky had no such markets in 2001, although there were seasonal tailgate community markets in the state. There were six, five, and five farmers' markets in Georgia, North Carolina, and Tennessee, respectively, that were included in the public market manager survey. Wide disparities in the scale of operations were present within the Georgia and North Carolina markets. With the exception of one market in Tennessee that only focused on assembly/packing/shipping, all of the markets had retailing activity.

This suggested that Tennessee and Kentucky producers had fewer marketing options and assistance available to them than did either North Carolina or Georgia growers. Marketing assistance was critical for many Kentucky and Tennessee farmers, because most farms (about 91% in Tennessee and 88% in Kentucky) reported total annual sales of less than \$50,000 in 2000. In Georgia and North Carolina, a majority of farms also reported total annual sales less than \$50,000, but a large percentage (25%) of firms reported sales greater than \$50,000. Thus, the average sales figures in Georgia and North Carolina were much higher. In addition, the steady-to-declining demand reported by many Tennessee and Kentucky growers was in direct contrast to the positive sales growth reported by other growers, especially Georgia and North Carolina growers.

Simultaneity and Produce Market Development

The disparity in the development of the produce industries among the states studied is only partially related to grower behaviors. Results of the surveys of the four other stakeholder groups indicate they have important roles in overcoming the simultaneity barriers in market development. In general, the level of activity in North Carolina and Georgia has exceeded that found in Kentucky and Tennessee.

Differences have been identified for the breadth and variety of programs and in the number of people involved with produce marketing activities. With respect to public farmers' markets, the states differ widely in terms of the financial support and the types of facilities in operation. For example, Tennessee does not provide any operating assistance for them, whereas North Carolina does. The types of facilities also vary. The Tennessee and Kentucky markets generally provide limited services. North Carolina and Georgia accommodate brokers and wholesalers at several of its locations, which also have cooling and repacking capabilities. The number of brokers and wholesalers operating in each state varies. Both Kentucky and Tennessee have fewer of these stakeholders versus North Carolina and Georgia. Extension programs with produce marketing emphasis are quite different. The latter has many more programs to assist growers in marketing their crops, including activities to bring buyers and growers together. The Tennessee Department of Agriculture has one full-time produce marketing position, while North Carolina has nearly thirty.

Taken together, the surveys point to the need for critical masses to be

present in order for development to proceed. A sufficient number of large growers, who may also be shippers, is needed to attract buyers at the first-handler level. Just building facilities is insufficient as critical masses of buyers and sellers need to come together with products that are in sufficient volumes, over sufficient time periods, and with the properties that buyers want. Then, smaller operations have outlets for their production beyond direct outlets, such as roadside stands and farmers' markets. Extension and state Departments of Agriculture need to have the personnel and programs in place to assist in produce marketing decision making and in bringing buyers and growers together. Public markets with facilities to attract brokers, wholesalers, and repackers could help facilitate development.

For More Information

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Charles Hall (crh@utk.edu) is Professor, Department of Agricultural Economics, University of Tennessee, Knoxville, TN. John Brooker (jbrooker@utk.edu) is Professor, Department of Agricultural Economics, University of Tennessee, Knoxville, TN. David Eastwood (deastwood@utk.edu) is Professor Emeritus, Department of Agricultural Economics, University of Tennessee, Knoxville, TN. James Epperson (jepperson@agecon.uga.edu) is

Professor, Department of Agricultural & Applied Economics, University of Georgia, Athens, GA. Ed Estes (ed_estes@ncsu.edu) is Professor, Department of Agricultural and Resource Economics, North Carolina State University, Raleigh, NC. Tim Woods (tawoods@uky.edu) is Professor, Department of Agricultural Economics, University of Kentucky, Lexington, KY.