Muscatine Melon: A Case Study of a Place-based Food in Iowa

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Photo by Oscar Grossheim, from the Oscar Grossheim Collection, Musser Public Library, Muscatine, IA (Title: Crates of melons at depot, 16 Aug. 1920). To view this and other photos go to www.muscatinelibrary.us

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Table of Contents Page

Executive summary

Muscatine County, Iowa is renowned for its sweet-tasting watermelons and muskmelons. Although melons from the region are still shipped to many parts of the state and beyond, the number of growers has declined dramatically over the past several decades. At the same time, distribution channels have shifted and consolidated. Once most growers sold at the farm and to small brokers and resellers; today there are few farm stands left and many retailers buy from centralized regional distributors. Farmers markets and wholesale marketing direct to retailers have made up the difference for some, but many have shifted to other crops or left farming altogether.

The soil and growing conditions in the Muscatine area are uniquely suited to the production of top quality melons. Economic analysis suggests that melon farming in Muscatine County can still be profitable, but increasing labor costs, price competition from imports, and limited shelf-life and processing options present significant challenges for producers. One strategy to support premium prices that could offset these challenges is to market and even trademark a "place-based" or geographic identity for the Muscatine melon.

Without a marketing program that builds on the unique qualities and identity of this traditional crop, melon production most likely will continue to decline in southeast Iowa.
Options explored in the past by growers in the Muscatine area have not resulted in pursuit of such a strategy. But there are many indications, including current consumer trends and the experience of marketing geographically identified foods in Europe, that a "place-based food" approach could have real benefit for both producers and consumers in the region.

Overview

Rolling acres of corn and soybeans stretching to the horizon are such a familiar image of Iowa agriculture that it is easy to overlook other kinds of farming in the state. In southeast Iowa a truck-farming region once called "the garden spot of the world" has produced a wide variety of fruit and vegetable crops for more than 150 years. Family ties to these operations go back many generations, transactions often are done with cash and a handshake, and a reputation for quality still brings calls from produce buyers around the country. Among the crops produced are sweet corn, squash, cabbage, potatoes, sweet potatoes, green beans, and tomatoes, but the area is perhaps best known for its sweet, juicy melons.

The sandy soil near the Mississippi River south of Muscatine, Iowa, primarily in the areas near Muscatine Island/Fruitland and Conesville is ideal for fruit and vegetable production, and has been farmed commercially since the mid-1800s. Both cantaloupe and watermelon are produced there; the area is especially known for several varieties of muskmelon characterized by pronounced ridges, deep orange color, and juicy, fragrant flesh. The number of growers has declined in recent years, but Muscatine melons can be found at grocery stores and roadside stands throughout eastern Iowa each July.

High-quality, place-based foods, sometimes certified through various government programs, have helped farmers in the European Union develop markets and retain an adequate share of the

profits for what they produce. Consumer trends indicate growing interest in local and specialty foods and in knowing where their food is produced. In considering whether geographically identified foods have potential in Iowa, the Muscatine melon-growing area offers a good example of both the challenges and the opportunities facing Iowa farmers who want to explore this approach.

In many ways, the situation in Muscatine County parallels the changes happening in U.S. agriculture everywhere: old ways of farming giving way to mechanization; consumer and retailer needs placing new demands on farmers; and a widening gap between small and large farm operations. The Muscatine experience also is in some ways an indication of how little the outside pressures facing farmers have changed over the past 100 years: in both historical accounts and current views, the pressure for short-term profit over long-term investment, low margins and high debt, and the recurrent difficulty of farmers working together all are evident.

However, there also is evidence that the growth of specialty markets and the reputation for quality that Muscatine melons enjoy in the market, at least regionally, offer some genuine opportunity for producers to develop and market that identity as a regional brand. This paper will focus on a discussion of the production, history and marketing of muskmelon in Muscatine County, Iowa, and its potential as a place-based food.

Definition of melons and varieties

Melon varieties produced in the United States are of two main types: *Cucumis melo*, or muskmelon, and *Citrullus lanattus*, or watermelon. Muskmelon as a species includes cantaloupe, honeydew, casaba, Crenshaw, Persian and other melon varieties. The terms cantaloupe and muskmelon often are used interchangeably in the United States to refer to oval, heavily-netted melons with sweet, orange flesh. However, true cantaloupe, more often grown in Europe and the Middle East, are smooth-skinned, smaller and harder. The varieties grown in Muscatine County are muskmelons, typically of the subgroup *reticulatus*. Despite the similar sounding names, the muskmelon is not named after Muscatine, but rather for its sweet, musky fragrance. Up until at least the late 1960s, melons were classified as vegetables rather than fruits. Today, due in part to their sweetness, they are typically marketed as fruit.

Common varieties of U.S. muskmelon tend to be of two main types. The larger, oval or rounded, with moderate netting and pronounced lengthwise ridges called 'sutures' are typically those produced in Muscatine and elsewhere in the Midwest. These varieties tend to have softer flesh, ripen best on the vine, and since they do not keep or ship well are usually marketed closer to where they are grown. The other common type is smaller and firmer with raised netting but without obvious sutures. These melons often are picked before fully ripe and shipped long distances. Typically the harder, round ones are Western varieties, grown primarily in California and Arizona, but regional differences are beginning to disappear.

In the Muscatine County area, gardeners and farmers historically planted their own open-pollinated seed, saved from year to year, and it is likely that specific varieties were associated with Muscatine. An estimated 90 percent of the open-pollinated melon varieties available 100 years ago now are extinct and today growers in the area plant the same varieties as in other parts of the country. As commercial production expanded, most growers shifted to hybrid varieties

that changed over time as new disease-resistant varieties were developed and as public tastes changed. There are numerous commercial seed sources although, according to one grower, there are fewer sources each year.

The Iowa Horticultural Society Annual Report for 1933 enthusiastically notes that "seed of a new salmon flesh cantaloupe selection, a chance hybrid from Honey Ball was distributed in 1933 for trial and demonstration" and reports that some farmers saved all the seed from the demonstration plot for use the next year. By 1950 varieties in use included Hale's Best 0-36, Purdue 44, Honey Rock, Queen of Colorado and Pride of Wisconsin.

The Muscatine Island experiment station tests new varieties each year, and has found that nearly any type of melon can be grown in the area. For many years the most popular varieties were Super Star, Gold Star, Hales Best and other Burpee hybrids. More recently, growers have been planting the Athena and Eclipse varieties, which tend to keep longer and have somewhat firmer flesh. Varieties common today include: Eclipse, a more traditional melon and the main variety currently grown in Iowa, Indiana and Missouri; Athena, a bit smaller, football-shaped and smoother, grown more in the south; and Aphrodite, a new kind with less coarse net and fewer ridges. The old favorite, Super Star, is reported by some to be on the way out due to its shorter shelf-life; it has excellent flavor and matures early, but lasts only two to three days after picking.

Organic melons are produced in some parts of the United States, but are especially difficult to grow in the Midwest climate. There is no significant production of organic melons in Muscatine County; however, there has been some research on organic production in other parts of the state. The organic market continues to grow—the Organic Trade Association reported that sales of organic products grew 20-24 percent annually during the 1990s – and there may be opportunity for production to develop further.

Melon uses

Muskmelon once was consumed almost exclusively as a seasonal fresh fruit. Now melons are widely available year-round due to imports, and a significant portion is sold to consumers as precut pieces either packaged for retail or in salad bars. However, their relatively short shelf-life and limited processing options are barriers to expanding the market share. Softer melons are not as acceptable for precut markets, which tend to favor the harder varieties. While muskmelon can be made into juice, jams or sauces, and sorbet, it is rarely marketed in these forms. Use of fresh melon in restaurants is primarily in fruit salad or as garnish, but as regional and seasonal cuisines attract more attention from gourmet chefs, menus are beginning to feature dishes such as melon-mint salad, melon with prosciutto, and cantaloupe sorbet.

Muscatine County and its connection to melons

The town of Muscatine, Iowa, (pop. 22,000) is sometimes known as Melon City, and local events include the Melon City Firecracker Classic fastpitch softball tournament, Melon City Criterium bike race and bike club, and the Muscatine Melon Patchers Quilt Guild. (The town also was once known as Pearl City, due to the shell button industry that flourished there.) Today the town's major industries include Monsanto, Heinz, and Hon Industries.

The name Muscatine comes originally from the Mascoutins, the native tribe whose camping grounds were located near what is now Muscatine Island (WPA Guide, 1938). A trading post was established along the river in 1833, and in 1836 a site for the town of Bloomington was surveyed. In 1849 the name was changed to Muscatine, reputedly named for Muscoutin Island which was by then a well-known landmark along the Mississippi River.

South of the town of Muscatine is a low sandy area along the Mississippi River approximately 3 miles wide and 19 miles long, still known as Muscatine Island. The area is bordered on the east by the river and along the west by what was once Muscatine Slough. The slough ran between the island and the town, connecting to the river to form a true island, but sometime around 1845 the portion within the city limits was filled in. The Island was originally a grass prairie; it is very flat, and levees are necessary to keep it from overflow by the Mississippi River. There are approximately 25,000 acres of tillable land on the Island.

The small town of Fruitland is located on Muscatine Island, and was established as a shipping center for the melons and other produce grown there. The town was originally called Island, (and according to one source was actually originally intended to be named "Melon") until it was renamed by the post office (Field Station report, 1985).

The excellent conditions for melons in Muscatine County result from a combination of natural and human factors. Coarse, sandy glacial soil, groundwater that is close to the surface, and a warmer, longer growing season than most of the rest of the state are natural features of the region. Farmers in the area have made the most of these natural benefits with the addition of levees that drain and protect the areas along the river from frequent flooding, a railroad depot that at one time allowed shipping direct from the Island, and the use of irrigation.

The fine sandy soil in this area is especially suited to fruit and vegetable growing. Almost all parts of the Island have good drainage. Aside from the area near Keokuk in Lee County, Muscatine Island has the longest growing season in Iowa. In 1925, Muscatine's growing season was 20 days longer than the state average of 156 days (Clowes, 1927). This is generally considered to be the most northern region suitable for melon production. In addition, the water table is very close to the surface, making it accessible for irrigation, and this was one of the first places in the state to irrigate crops.

Muscatine County is located within the Mississippi Loess Soil Area (Clowes, 1927). The sand is a result of glacial deposits, and has an unusually coarse, sharp-edged texture, rather than the smoother grains that are often found along riverbeds. Growers in the area credit the sandy soil with a number of benefits. One grower says the sandy soil gets hot, which makes the melons sweeter as they ripen. Another suggests that the sand allows the water to flow into the soil so it doesn't stay on the surface and cause the melons to rot.

Muscatine Island is one of two primary melon-producing areas in the county. The other is on the western edge of the county, along the Cedar River valley near the town of Conesville, where the soil also is very sandy and well-suited to melon and other vegetable production. Melon farming around Conesville began in the 1880s, and one of the county's largest wholesale growers is located in Conesville. Although there is some debate about whether the designation "Muscatine

melon" should apply to produce from anywhere other than Muscatine Island, most growers and distributors extend the designation to any melons produced within Muscatine County.

There are some melons grown on a smaller scale in Louisa County, Iowa, directly south of Muscatine County. There also are some areas along the Illinois side of the river that have been known for melon production. At Thomson, Illinois, people once came from 40 to 50 miles to load up on melons. There is much sandy soil along the river, especially near Thomson, and melons were grown there as early as the 1920s. Carroll County, Illinois also is known for muskmelon and watermelon.

Production and marketing history

Melons were first grown in home gardens, brought by settlers from the eastern United States and by immigrants, many of them German. Commercial development of truck farming for a wide variety of vegetables, including melons, didn't begin to take hold in the Muscatine area until 1874**,** when William Henry Hoopes, reputed to be the originator of wholesale gardening on Muscatine Island, purchased a tract of land and began producing fruits and vegetables for export outside the state. Before that, all produce in the area was sold locally or raised for home use, and there was often more supply than demand. Locals were skeptical about Hoopes' plans, but over the next several decades production and export grew well.

In 1880, a Rock Island Railroad depot opened at the newly platted town of Fruitland on Muscatine Island, and the first shipment of melons was sent by railroad from Muscatine that August. A total of 30 carloads were shipped that year. The new railroad saved the farmers miles of heavy hauling. "From this small beginning the melon and sweet potato business on the island had gradually grown until the shipments from Fruitland amount to hundreds and hundreds of cars of melons each year" (Richman, 1911).

By 1899**,** Hoopes and his two sons had 900 acres under cultivation, producing sweet potatoes, melons, cabbage, peas, tomatoes and onions. His well-known Island Garden Farm-- "under the highest state of cultivation, and [is] well improved with commodious and tasty buildings, groves and hedges" -- grew mainly sweet potatoes, but melons, cabbage and tomatoes also were staples. Produce was mainly shipped to Minneapolis/St. Paul, Fargo, Duluth, Helena and towns on Northern Pacific Railroad, and to Winnipeg, Omaha, and Denver. Hoopes is credited with having "made the once despised flats of Muscatine Island to blossom as the rose, and spread its fame far and wide throughout the country" (Acme Publishing, 1889).

Another important influence on Muscatine County horticulture was Suel Foster, who founded a nursery business in Muscatine in 1852. Foster was an educator and writer, and in 1858 the State Legislature adopted his proposal for the establishment of an Agricultural College, which become the modern-day Iowa State University. He also was a founder and president of the Iowa State Horticultural Society, and an avid promoter of the region's fruit and vegetable farming (Field Station report, 1985).

In 1916, the first carload of muskmelons was shipped from Conesville—melons had been raised there for 20 years before, but were always shipped by crate (Brown, 1978). The melons were

packed loose, directly into the railroad cars and surrounded by straw. Now all melons are crated once again, as the bulk pack requires too much handling.

By 1921, production of melons from Muscatine County totaled 750 carloads of watermelon, produced on around 2000 acres of land; and 100 carloads of muskmelon and cantaloupe, grown on around 500 acres. The 1925 Iowa State Vegetable Growers Association reported that Hal Wolford of Conesville was growing Hales Best and Perfectos: "The biggest benefit over California melons is that they are vine-ripened close to market." It took approximately 12 days for the melons to reach the East Coast from the West Coast, whereas it took about six to eight days from Iowa (Iowa State Vegetable Growers Association Annual Report, 1925).

Truck growers at this point used domestic farm labor for producing and harvesting, and any other labor needed came from the city of Muscatine. Most of the vegetables were marketed in Chicago, St. Louis, Memphis, New Orleans, and the Twin Cities. Chicago was a 12-hour run by railroad; St. Louis, Kansas City and New Orleans were on direct rail lines, which offered good transportation facilities to the area growers. The Growers Association also reported for the first time in 1925 that Iowa cantaloupes were shipped to New York in carlots.

Figure 1: *Photo by Oscar Grossheim, from the Oscar Grossheim Collection, Musser Public Library, Muscatine, IA (Title: Crates of melons at depot, 16 Aug. 1920). To view this and other photos go to www.muscatinelibrary.us*

Melons were grown successfully for many years until a wind-blown blight settled in, causing melons to wilt on the vine. Yields decreased year by year, and by the mid-1920s the melon crop could no longer be counted on for cash crop return (Brown, 1978). Growers throughout the area met several times to discuss the increasing problems with plant disease and this led to the formation of the Conesville Experiment Association and the Fruitland Experiment Association. The Conesville field station was established in 1927 specifically to investigate disease-resistant varieties of watermelon and muskmelon, as well as other crop disease management practices.

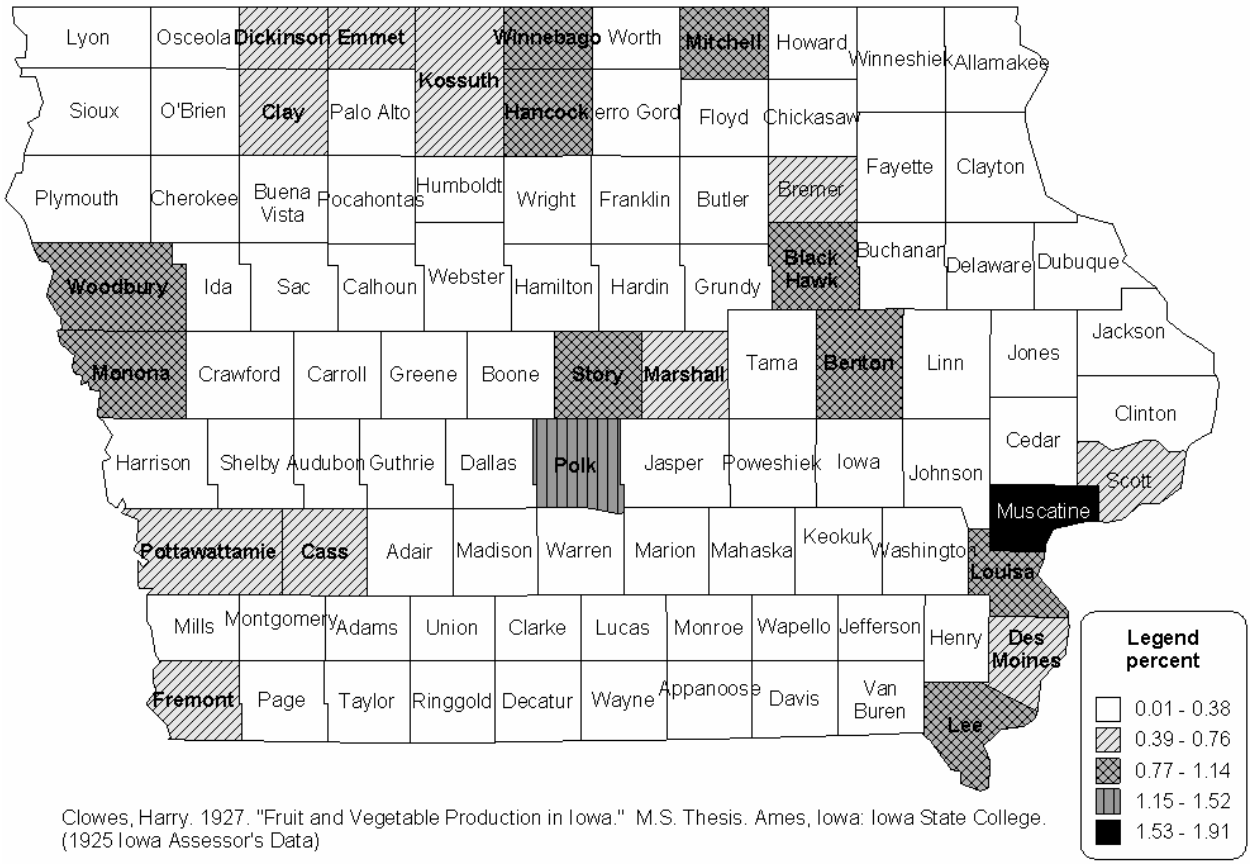
Area farmers also saw a need for research and demonstration of cultivation methods to improve productivity and yields. The Muscatine Island Truck Growers Cooperative was formed in 1934,

and made an agreement to provide land and research facilities for Iowa State College personnel to manage as an experiment station. The station was established at Fruitland in 1935 and continues to conduct research and education on a variety of crops. The cooperation of the growers' associations and the work being done at both experiment stations have been important to the continuing success of fruit and vegetable crops in the region (Field Station report, 1985).

Wind erosion of the sandy soil also was a problem. In the 1930s, land in the Conesville area was purchased from discouraged farmers by Roy Smith, who began planting the area to alfalfa. "With the change in handling the land, and emphasis on keeping it covered wherever possible, came a shift to some extent to more corn and beans, with only a few acres of melons and/or potatoes by some farmers, to give the land owner or renter a cash return. …Better crops added more humus to the soil; rye strips left between melon and cantaloupe rows also helped stop the wind-blow" (Brown, 1978).

According to 1925 Iowa Assessor's data, Muscatine County was the only county in Iowa at that time with more than 1.5 percent of land devoted to horticultural crops, which helped to bolster its reputation as a "garden spot" (Clowes, 1927, Figure 2). By the 1930s a wide variety of truck crops were grown in the county, and there were a half-dozen commercial shipping centers operating as well as numerous canneries.

Figure 2: Percent of Land in Horticultural Crops



Clowes, Harry. 1927. "Fruit and Vegetable Production in Iowa." M.S. Thesis. Ames, Iowa: Iowa State College. (1925 Iowa Assessor's Data)

In 1961, 24 states produced cantaloupe commercially, led by California, which produced more than one-half of the total U.S. production in 1959. Iowa was not among the top twelve producers. Large quantities also were imported each year from Mexico, and some from Cuba and Canada. Sizable quantities also were exported each year from the United States to Canada. The main varieties were Hales Best, most suitable for shipping, and Bender, grown mostly for local markets.

The seasonal production was heaviest from June to August, with about 70 percent of the total sales during these months. A very limited supply from December to March came primarily from Mexico. Prices varied considerably, with the low point usually occurring in August and higher prices prevalent during winter when supplies were lowest. Most melon was consumed fresh, although a small quantity was packed frozen. Per capita consumption had dropped from an average of 8.4 lbs/person in 1920-29, to an average of 7.2 lbs/person in 1959 (Futrell and Kolmer, 1961).

The number of farms growing cantaloupe and watermelons, like most U.S. agricultural products, fell dramatically from the 1960s to today. By 2002, there were only about 17,600 farms compared to 36,800 in 1964 (Table 1). The number of cantaloupe acres grown has remained relatively constant at about 105,000 to 115,000 acres. Watermelon acres, however, have fallen nearly one-third to 165,000 acres. California and Texas alone contribute about 117,000 acres from 2,300 farms. In Iowa, both the number of farms and acres have fallen by a little more than half since 1964. In 2002, there were 155 farms in Iowa growing cantaloupe and watermelon on 623 acres.

Table 1. Cantaloupe, Muskmelon and Watermelon Farm Numbers and Acres Farmed for the United States and Muscatine County, Assorted Years from 1964 through 2002.

	Cantaloupe and Muskmelons		Watermelons	
United States	Farms	Acres	Farms	Acres
2002	7,478	105,262	10,121	164,525
1992	7,501	106,938	10,706	220,244
1982	8,167	113,981	11,888	184,043
1974	3,314	70,621	8,985	135,876
1964	14,131	115,677	22,626	245,761
Muscatine County				
2002	6	49	6	58
1992	21	176	24	150
1982	16	149	20	121
1974	13	83	22	204
1964	35	271	41	379

Per capita melon consumption from 1970 to 2000 rose about 25 percent from 21.6 lbs to 26.9 lbs. Demand has increased as a result of Americans making more healthy food choices with products available year-round. Approximately 40 percent of this increase has come from imports (Lucier and Plummer, 2003). Cantaloupe per capita consumption has approximately doubled over the past 20 years from 5.8 to 10.8 lbs/person. Roughly one-half of the increase in demand is met through increasing imports as consumers want a product available year-round.

Muscatine County muskmelons today

Producers

The number of melon growers in Muscatine Co. has declined significantly over the past 20 to 30 years. To a remarkable extent, those who are still active in the melon industry are families who have been raising melons for many generations, including several families whose roots date back to the original Muscatine Island producers. As one grower put it, they stay in it "for the way of life, not the livelihood." It is hard work, financially risky with slim profit margins even in good years, and little support is available. These producers often do business with customers and suppliers with whom they've had relationships for decades. Change and consolidation within the wholesale and retail grocery industry also have meant changes in the traditional channels for marketing Muscatine produce.

According to the U.S. Department of Agriculture (USDA), there are 12 commercial melon growers left in the county who are producing cantaloupe and watermelons on 107 acres (USDA, 2004). There are likely another 10 to 20 producers growing small quantities. All of the farmers who raise muskmelons also grow a variety of other crops, including watermelon, squash, sweet corn, cabbage, tomatoes, eggplant and even okra. In fact, most of them raise more of these other crops, especially watermelon, than they do muskmelon. Although there are no formal records, growers can name most of their fellow melon producers, and can list the names of those no longer in the business.

Melon growers in the county today can be grouped into several categories based on size and marketing channels: large-scale producers who grow, pack and wholesale melons; small-scale farm stand/farmer's market producers; and midsize producers who combine direct-to-retail, farm-stand, farmers market and wholesale sales.

The Muscatine Island Grower's Association had 50 dues-paying members for 2004, of which about 30 were actual producers. Twenty years ago there were three times as many: 120 members, 90 of them growers. All of the association growers have small scale operations, 10 acres or less. Many are within a few years of retirement. The Growers Association also owns the Research Farm at Fruitland.

Reasons for the decline in the number of producers vary. Production methods are more efficient and it takes fewer growers to produce greater volume. Older farmers are retiring and younger family members are no longer taking over their farming operations, as opportunities for higher education and urban or out-of-state jobs become more attractive and accessible.

Labor costs are high—produce requires more hand labor than field crops such as corn or soybeans, and family and youngsters in the community are no longer available for field work. In addition, the fruit and vegetable markets are volatile and the crops are highly vulnerable to weather, making them riskier and more complex to raise; some growers see corn and beans as more predictable and easier to market. Seed corn also does well in the area; good access to water and drainage and irrigation means the crops will be successful no matter what the weather. Land in the county, as in many other rural areas, has been sold off for industrial uses, housing and city expansion—several of the Island growers have been forced to move or sell land to the City of Muscatine for airport expansion in recent years, for example.

Production methods

Growing practices vary among producers, in part due to size or location, but it is helpful to understand the basics of production in order to look at potential marketing opportunities. Melon production involves significant hand labor, even for the larger operations. Plants are started from seed in the spring; a first crop is generally planted in early May after danger of freezing is past. Later plantings are staggered to spread out the harvest times.

Many growers now use black plastic to mulch rows. Almost all production in the county is done with irrigation, either with above ground pivots, or through a drip system laid underneath the plastic. Melons are rotated with other crops to avoid disease, another reason farms raise a variety of crops. Spray is typically applied every seven to 10 days for fungus and diseases while the plants are starting out. Research on disease-resistant varieties and introduction of plastic mulch has helped to cut down on weeds, loss, and pesticide use. According to the research station staff, farmers used to expect to lose 25 percent of the vines.

The presence of bees for pollination is a critical factor in melon success. Most growers keep hives at the edges of the fields, or hire someone to bring bees each year. One large grower rents as many as 300 hives during the summer months from a beekeeper who moves the hives to California once they are done in Iowa. Bees help speed up pollination, increase yield and improve the size of the melons, although too many bees make for smaller melons. Bee activity, along with all other aspects of melon production, is greatly affected by weather.

Harvest is generally done by hand, with a line of workers walking along several rows at once. Melons are picked and passed by hand along the line into trucks or directly into bins at the edge of the field. Picking takes place from mid-July to early September, and melons are picked every day until the harvest is complete. The ideal sized melon weighs around 5 pounds, up to around 7 to 8 pounds. Demand and price drop when school starts, so the window for harvest can be tight, depending on weather conditions and how early the melons ripen.

Most farmers hire seasonal labor for picking, from a few workers to as many as 100. Labor is harder to find than it used to be—seasonal part-time workers are not as readily available and family members are not as involved in farming. The lack of available labor is one reason farmers shift to crops they can manage with equipment. Local teenagers used to do this work, but school activities and changing attitudes have meant fewer youth available in the summers. Many growers hire laborers from Mexico, and report hiring the same families year after year. Some producers provide housing and transportation for the workers.

One large producer uses a conveyor belt system to move muskmelons to trucks once they are picked, instead of relaying the fruit by hand. They are then hauled to a packing facility where they are washed, sorted and dried before being packed in large cardboard bins. Few growers label muskmelons with individual stickers, although one large wholesale producer does apply stickers to muskmelon for some supermarkets, and more stores are beginning to require this.

There are differences among growers in the county. As far back as the early 1900s there has been some rivalry concerning what should be considered a Muscatine melon, particularly between growers in Conesville and the Muscatine Island area. In the eastern area around Muscatine Island, farms tend to be small (under 10 acres), and growers rely on the Research Farm for expertise. Most growers sell through a combination of farm stand, farmers market, and direct to retail, with some wholesale sales to brokers and peddlers. They rely heavily on hand labor at all stages in production. In the western part of the county, around Conesville, there are a few small producers and one large family operation with several hundred acres. They often rely on growers outside the region, in Indiana and Florida, for advice and expertise, and have invested in machinery and mechanization in their planting, picking and packing operations, although they still require significant hand labor. However, there is widespread respect for the work of the research stations and appreciation of the hard work and challenges all growers face, no matter what part of the county or what size operation.

Estimated profitability

Accurate profitability estimates do not exist for Muscatine melons. Melon producers, as well as other agricultural producers, tend not to keep accurate records. Those who do keep good records do not tend to share that information. Producers indicate cantaloupe prices have fallen steadily in recent years from $18 per cwt (hundredweight) to about $9 per cwt for 2004. Although the USDA reports steady season average prices of around $18 per cwt over the past five years for cantaloupe (Lucier and Plummer, 2003), the steadily falling prices reported by farmers are indicative of moving from retail to wholesale markets. Taking into consideration wholesale and retail markups, a producer would receive approximately one-half of the retail price. Expenses, however, have steadily increased in recent years, as is the case for all of agriculture.

A muskmelon commercial budget was developed in 1996 and distributed by Iowa State University Extension (Anfinsin et al., 1996). The budget indicated production costs were about $5,000 per acre. Assuming production costs have risen 10 percent to $5,500 per acre since 1996 and yields are 40,000 lbs per acre, a price of $13.75 per cwt would be needed just to cover production costs. A watermelon budget was developed as well and indicated production costs of about $2,400 per acre. Again assuming a 10 percent increase in production costs to $2,640 per acre and a 40,000 lb yield, a breakeven price of $6.60 per cwt would be needed to cover production costs. As fewer, larger farms produce more of the area's production, more melons will likely be sold through wholesale rather than retail outlets. Producers may struggle at times to sell wholesale products much above breakeven prices.

There were 816 Muscatine County farms in 2002 selling $72.1 million worth of agricultural products (USDA, 2004). Of the 816 farms, six produced cantaloupe and muskmelons on 49

acres. Assuming average sales of $7,200 per acre (400 cwt at $18 per cwt), a total of $352,800 in sales would occur from these farms (less than one-half of one percent of total sales). However, if farmers in Muscatine County reverted to their 1964 production of 271 acres, total sales would be about $1.95 million (2.7 percent of sales). Assuming watermelon average sales of $3,600 per acre (400 cwt at $9 per cwt), a total of $298,800 in sales would occur from the 58 acres in 2002. Again, reverting back to 1964 acres would have provided $1.36 million (1.9 percent of sales). The reversion of acres to melons would significantly increase the importance of cantaloupe, muskmelons and watermelons compared to total agricultural sales in Muscatine County.

A more interesting view may occur when looking at net cash income per acre (Table 2). Average net cash returns for cantaloupe would be estimated at $1,700 per acre ($7,200 in sales less $5,500 in production costs) and $960 per acre for watermelons ($3,600 in sales less $2,640 in production costs). If Muscatine farmers reverted back to 271 acres of cantaloupe and 379 acres of watermelon, total net returns would be approximately $825,000 ($460,700 + $363,840). Average net cash returns for a corn-soybean rotation would be around $20 per acre. To achieve a total net cash income of $825,000, 41,250 acres of corn and soybean would need to be farmed. In 2002, there were 158,800 acres of corn and soybean harvested acres combined in Muscatine County (USDA, 2004). Purely from a net cash income viewpoint, the 650 reverted cantaloupe and watermelon acres would equal 26 percent of all corn and soybean acres and would significantly contribute to the economic activity of the county.

Table 2. Net Cash Income Comparison for Melons vs. Corn and Soybeans, Muscatine County, 2002 and Reverted 1964 Acres.

	Acres	Estimated Net Cash Income Per Acre	Total Net Cash Income	Corn/Soybean Equivalent Acres
2002		($)	($)	
Corn and soybeans	158,800	20	3,176,000	
Cantaloupe	49	1,700	83,300	4,165
Watermelon	58	960	55,600	2,780
1964 Reversion				
Cantaloupe	271	1,700	460,700	23,035
Watermelon	379	960	363,840	18,192

Marketing

Distribution channels and market outlets are undergoing significant change, and represent both the biggest challenges and the greatest opportunities for melon growers in the region. Besides the growers themselves, the melon value chain includes a variety of other players. Small, informal operators traditionally known as "*peddlers*" buy direct from the growers and sell to stores as well as at busy highway corners. Often peddlers are retired from farming or other occupations and sell a few trucks-full of melons as a sideline each year. Brokers buy from several growers and

market to wholesalers and retailers, sometimes outside the region. Distributors buy from growers and sell to retailers. Many producers and sellers of Muscatine melon do some combination of all of these, growing some, buying from others both in and out of the region, selling on their own or through representatives at area farmers markets, delivering to retail stores throughout the state, and selling wholesale to other distributors and producers.

There are two or three major wholesale distributors in the county. One also is a major producer, with 40 to 50 acres of muskmelon and 200 acres or more of watermelon and other crops. The majority of their crop is sold through a produce distributor in Des Moines; their melons are shipped all over the United States and even into Canada. They sell the remainder to retailers, brokers and peddlers, and are one of the few growers not selling direct to consumers at a farm stand.

Another major distributor buys produce from Muscatine Island growers, including the Research Farm, and has bought from many of the same growers for over 20 years. He sells primarily to grocery stores within a 150-mile radius, and provides 70 to 80 stores with sweet corn, squash and other vegetables grown in the Muscatine area, as well as tomatoes and some other items shipped in from other states. Both distributors sell very little to restaurants; turnover in buyers is frequent and their ordering process is different, which has limited their pursuit of the restaurant market.

Changes in wholesale options from year to year can have a significant effect on outlets available to small producers. A wholesale broker from Oskaloosa, who bought from many area growers for the past five years, left the business in 2004 leaving many of the growers searching for other markets. A long-time peddler who picked up melons from several growers weekly for many years also went out of business in 2004. Growth in area farmers markets has made up the difference for some; others have shifted to different crops.

As recently as a decade ago, peddlers would come to farms to buy, often lining up in the mornings to load up trucks or cars with the back seats taken out before heading out on regular routes across the state. This is much less common, particularly as older sellers retire, and retail stores shift to centralized buying. Some people used to buy for resale at farmers markets, but most markets now restrict sales of produce to items the sellers have produced themselves. A number of growers have permits to sell at various local markets, and family members or associates will take their produce and work the market stands, sometimes at five to 10 different farmers markets every week. One grower credits farmers markets with helping to expose consumers to more premium quality produce, and growers generally appreciate that the markets require proof that farmers have grown the product they are selling, even though it has limited outlets for some. Direct sales to consumers yield the highest returns, so the farmers markets are an important outlet.

Five or six market stands are spread along Highway 61 between Muscatine and Fruitland, and a handful of others are located throughout the county. At one time almost every grower had a farm stand. As one producer puts it, “used to be everyone had a little market and sold in front of their place. The old time way was to grow the stuff and wait for people to come out to the farm to buy it.” When people stopped driving out to the farm, the farmers stopped selling, unless they were willing to search for new outlets or take their products to the farmers market in town.

Two of the longest-standing roadside markets are Hoope's Melon Shed and Schmidt's Farm Market—advertised as "the oldest market in Iowa" —both along Highway 61 near Fruitland. They raise and sell their own produce as well as buying from other growers in the area. They offer good examples of the ways growers have adapted to remain profitable: in addition to the farm stand, both have expanded into other markets—Hoope's now operates a gas station and convenience store, and Schmidt's has opened a restaurant featuring home cooked meals and pies. They also sell to various peddlers and in Hoope's case, at area farmers markets and direct to a local retail outlet.

A Muscatine Growers Co-op was established a number of years ago by several Island growers and has marketed melons in years past, but has primarily shifted to other crops. Pressure from retail customers for earlier availability has led wholesalers and farm stand operators to bring in more produce from outside the region. As early as February, cantaloupe, tomatoes and watermelon come in from Texas and Florida, and from locations farther north as the season progresses.

Grocery chains require a supplier who can deliver by the truckload and compete on both quality and price. Large retail chains often don't buy from local sources anymore. Price is a big factor—retailers will shift from one supplier to another because of price, and produce from other regions or large distributors can undercut the local markets. Muscatine wholesalers all say they do get a few cents more per pound from brokers and retailers who know their products are genuinely local and top quality. However, many retailers believe that consumers generally are more concerned with price than with where their produce comes from.

Shipping out of the area has meant progress as well as some sacrifice, such as changing from traditional melons to more popular, longer-lasting varieties. Producers who are actively working on developing new markets say that they have been able to reduce the distance they have to go as the market develops closer to home.

Certification marks

Occasionally the designation Muscatine melon is applied to melons that have been grown elsewhere. This occurs in retail stores and farm stands, and it is usually most evident early in the season, when so-called 'Muscatine melons' show up in stores before any melons in the area are ready for harvest.

It is unclear whether the mislabeling is intentional or due to confusion—some people mistake "Muscatine" to mean the variety of melon commonly grown in the area. In fact, a recently published guidebook on melons lists the Muscatine Melon as a specific variety (Goldman, 2002). In other cases retailers purchase melons from wholesale distributors in the Muscatine area and either intentionally or not, label melons that have been grown elsewhere as coming from Muscatine. Growers in the area generally do not like to see mislabeling, although some express the belief that it doesn't really hurt them and in fact is good publicity for the name.

One approach to developing a brand identity for marketing place-based produce is to trademark the identity and regulate its use. Vidalia onions have been successfully marketed under a certification mark in this manner through the Georgia Department of Agriculture, as have melons and other products with geographic indications in Europe. Muscatine melons have an informal identity already established in the market, and the growers in the area have considered registration as a way of protecting that identity.

According to research by the Iowa State Attorney General's office and Department of Agriculture, it is possible to trademark the Muscatine melon designation as a certification mark, similar to that held by the Vidalia onion growers in Georgia. Development of such a mark would involve setting standards for the location, variety, and quality of melons to which it would be applied, and would require a system for identifying and tracking the melons, such as stickers and bin labels. Use of a certification mark also would mean that the growers would need to enforce the quality and labeling requirements, and the mark would need to be in active use in order to remain protected. Registering of a trademark also obligates the holder of the mark to legally pursue any violators, in order to protect the integrity of the mark.

In July 1996, the Muscatine Island Truck Growers Association contacted the Iowa Department of Agriculture to report improper uses of the Muscatine designation, and at their annual meeting in March 1997, the growers association discussed taking further steps to address the problem. The Department of Agriculture contacted some retailers whose practices were in question, and developed a letter for use when complaints arise. After further research and consulting with a trademark attorney, the Growers Association held a special meeting in April to discuss the possibility of applying for a trademark to protect the Muscatine melon label.

The proposal considered pursuing a certification mark through the U.S. Patent and Trademark Office. Legal costs were estimated at around $1,000. As proposed, the term would apply to melons (muskmelon, honeydew and watermelon) grown in Muscatine and Louisa counties in Iowa, and would be applied only to melons of at least U.S. No.1 grade or better. Approval for use of the term was to be regulated by the Growers Association, which also would provide some advertising and promotion during melon season.

The Growers Association decided not to pursue a certification mark for a number of reasons. Members were reluctant to be in a position of having to enforce quality standards among growers, and it was difficult to agree on what standards to use and who would determine if they were being met. Longstanding differences within the grower community about growing and marketing practices could be difficult to overcome. Cooperation and recognition of mutual benefits would be essential to the success of any trademark effort.

Protection of the certification mark would obligate the growers association to actively use the mark and to pursue action against anyone misusing it. This potentially can involve costly legal actions, as well as an administrative burden; in the case of the Vidalia onion mark, enforcement efforts have had to expand to all parts of the United States as the market for the onions has grown. Effective use of a trademark also would require that melons be "stickered" as well as identified on bins, in order for the identity to be maintained for retail consumers. Most growers in the Island region pick and pack melons entirely by hand, meaning the application of stickers

would add to already high labor costs. In addition, because the melons are picked and packed directly into open containers in the field, the stickers are likely to blow away during transport.

Most growers felt they would not recoup these costs in higher returns. Growers in the Muscatine Island area are mostly small operations, under 10 acres, and the additional costs and logistics of a trademark program did not appear economical at that scale. Larger producers are better positioned logistically to handle labels and other requirements, and tend to see more advantages to marketing the local name.

Limited availability, vine-ripened freshness, and local sources are some of the qualities Iowa consumers value about Muscatine melons; but these same qualities—the short (six to eight week) harvest season, perishability and limited suitability for shipping—present significant challenges to the success of a trademark or geographic identification certification mark. The lack of processing options for muskmelon as compared to apples or onions, for example, also is a limitation.

The discussion in 1997 did not result in pursuit of a trademark, but the Growers Association did develop marketing posters for use with the melons. (See Figure 3.) They were used by some growers and retailers, but in hindsight growers found they were not properly designed for retail display or pricing information, and no further marketing efforts have been made. Some prefer to focus on developing their own labels, although more than one wholesale marketer indicated that they believe a coordinated marketing effort to promote the Muscatine name would have potential to increases sales or prices if backed with consistent quality melons.

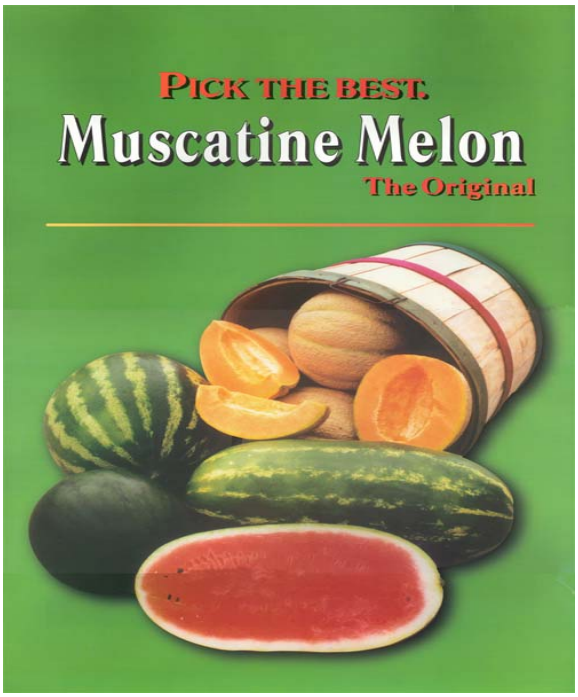


Figure 3: Growers Association poster, 1998

Conclusions: Challenges and opportunities

In 1867, in an address to the First Annual Meeting of the Iowa State Horticultural Society, C.V. Holsinger described the present and future of the small fruit industry in Iowa as "corn, corn, corn." His prediction did not keep the melon and produce industry from booming for a time in some parts of Iowa, but a century and a half later, his words ring even truer.

Challenges

Profitability continues to challenge both large and small melon producers. Growers who sell primarily to wholesale markets face lower margins at wholesale, resulting in pressure to increase volume and reduce costs in order to compete with high-volume producers in other states. Other challenges for Muscatine area melon growers include: declining number of growers; rising cost of labor; short harvest season (six to eight weeks); perishability and limited suitability for shipping; lack of processing options; difficulty agreeing on quality standards; logistics of tracking, stickering and packing; shrinking market and distribution options; strict farmers market rules that prohibit secondary sellers; and confusion over whether Muscatine is a variety or a place of origin.

Opportunities

Even given this array of challenges, there are opportunities available to Muscatine melon producers. In many parts of Iowa it is still easy to find people who know and appreciate Muscatine melons, often remembering parents and grandparents who waited for the trucks of melons to come to town each year. Outside the Midwest, the melons are familiar to some thanks to childhood visits or relatives from Iowa.

Muscatine melons are a unique and genuine part of Iowa's agricultural heritage, and a tasty, sought-after treasure today. Opportunities exist to strengthen and promote them as part of a diverse, viable and sustainable food system for the state. In addition to a name that is already recognized by some retailers and consumers and a reputation for quality and uniqueness, opportunities include: a variety of options for regulating truth in labeling and developing brand promotion based on regional identity; and soil in Muscatine County which is unique for producing good melons.

Consumers respond positively to advertising and education that "puts a place and a face to the product," and interest in local and place-based foods is growing. All of these factors indicate that the Muscatine melon name has value, and that building on that quality could positively affect demand, price or both.

Recommendations

How should Muscatine melon producers try to reduce the challenges and take advantage of the opportunities? It is possible to enforce accurate use of the Muscatine melon designation through point-of-origin and truth-in-labeling standards, in lieu of, or as a step toward development of an actual trademark. A well-designed branding and marketing program, promoting the quality and uniqueness of the region and its melons, accompanied by some type of consistent signage and labeling, could affect consumer perceptions and raise both demand and price premiums. Rocky Ford melons from Colorado currently take advantage of a specialty niche market based on this approach. Further investigation of the specific soil conditions and historic melon varieties could

better identify what makes Muscatine melons unique. Organic production of melons is particularly challenging in the Midwest climate, but may be worth investigating as another means of adding value and commanding price premiums. A "Buy Fresh Buy Local" or other coordinated campaign to promote melons along with other produce in the region is another option, and would support other crops grown in rotation with melons as well.

Without a renewed program to market and support the melon industry in Muscatine County, it is likely that within a few years it will consist of a few small producers who will rely on agritourism and other endeavors to remain viable. Therefore, further discussion and possibly a survey of Muscatine County growers, perhaps in conjunction with the Growers Association and the Growers Co-op, could determine if there is interest in developing a brand or label. Further examination of the experience with geographic identities for European melons would be useful. The costs and elements of a fully developed marketing and branding program need to be outlined. Possible opportunities in organic production and restaurant markets should be explored. In total, efforts such as these may help return a declining industry to favorable economic levels.

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