Vegetable Gardening in the United States: A History, 1565–1900

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To gain a full appreciation of the present, it is often useful to review and consider what transpired in the past. This paper briefly examines one aspect of horticultural history: vegetable gardening in the United States before 1900. The 1st part will concern the home kitchen garden; the 2nd will deal with the development of commercial vegetable growing.

Background

It is appropriate to gain some perspective by briefly reviewing the vegetable situation in England prior to the colonization of America, Horticultural practice in Medieval England was apparently quite limited, and it is possible that a greater quantity and variety of vegetables were grown during the Roman occupation than during the 13th or 14th Centuries. Although the monasteries of the period probably supported more elaborate gardens, the average cottager subsisted on a diet consisting largely of pottages and porridges, of which the chief ingredients were either dried peas or beans (Vicia faba). So many dried peas were eaten that one is reminded of the old nursery rhyme, "pease porridge hot, pease porridge cold, pease porridge in the pot, 9 days old." To provide flavor to this rather bland staple, leeks, garlic, and onions were added liberally. Turnips, parsnips, and loose-headed relatives of cabbage also were consumed, as well as various wild greens (3, 25, 35).

During the Renaissance, a time of intellectual and scientific renewal, a number of different vegetable crops were either introduced or re-introduced into England. Asparagus and celery were brought from France, beets came from Italy, cauliflower arrived from Spain, and carrots were imported from Flanders. The wealthy and educated among the population were the first to seek and try new taste sensations, but soon they were available to everyone. Some vegetables were accepted readily by the general public, but others remained as exotics (3, 11, 22, 35).

The exploration of the northern part of the American continent began during the early years of the 16th Century. Jacques Cartier sailed up the St. Lawrence in 1541 and planted a garden on the river bank at Montreal (14). Further south, the Spanish garrisoned St. Augustine in 1565. Since the soldiers brought their families, gardens were soon established (23). Followers of Samuel de Champlain planted a garden on a small island, now a part of Maine, in the St. Croix River in the spring of 1605. They sailed to Nova Scotia shortly afterwards but enjoyed a salad upon

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their return. Captain John Smith, while charting the coast of New England during the summer of 1614, established a garden on the top of a "rocky isle". Although Jamestown was settled in 1607, it was several years before its gardens prospered (20).

Kitchen gardens

The kitchen gardens of the early settlers were planted immediately adjacent to the dwelling and contained not only vegetables, but also medicinal herbs and perhaps a few flowers (20). The colonists planted seed of familiar vegetables from Europe, and they quickly adopted the native crops: corn, summer squash, pumpkins, and beans. Flint corn was consumed while immature, much as sweet corn is eaten today, but true sweet corn would not be enjoyed for another 150 years. Pumpkins were used as a vegetable, stewed in a pot with meat, or baked on the hearth (20, 32).

Returning home to England after an extended visit to New England, William Wood described life in America in a small book published in London in 1634. He reported that vegetables grew well in the New World and listed those crops he had observed (Table 1) (41). Peas were still commonly grown as a field crop for dried peas, rather than as a garden vegetable.

As the sea coast and the river estuaries became heavily populated, the colonists began to settle the forested interior of the country. At first, gardening was essentially neglected while a cabin and a cattle shed were erected and enough land was cleared to raise a crop of corn. Once these tasks were accomplished, there was time to plant a small garden, which had to be fenced to protect it from both wild and domesticated animals (15). Some turnips, a few cabbages, a row or 2 of beans, and a couple of hills of cucumbers probably comprised the average garden. Wild greens were collected, especially in the early spring, and a small plot of peas was sown for winter use. Pumpkin seeds were planted here and there among the hills of corn.

When additional land had been cleared and the cabin replaced by a frame dwelling, there was more time for gardening. However, most Americans of the 18th and early part of the 19th Centuries lived primarily on grain, meat, fish, and game. Apples were dried or made into cider, but vegetables for the most part were considered "fancy" food, to be eaten by "ladies" and "gentlemen" but not necessarily by the average citizen (32). Even as late as the 1830's, horticultural writers complained about the lack of vegetables in the American diet. In 1839, the following item appeared in the Genesee Farmer (published in Rochester, N.Y.): "There is a feeling unfortunately too prevalent among farmers that all the time and labor expended on a garden is thrown away; hence it is either wholly neglected or left to the care of children...' Judge Jesse Buel, the editor of the Cultivator, wrote in that same year that, "The generality of country gardens exhibit but a scanty assortment of vegetable productions and these are but badly cultivated, and often of inferior quality...' In the Gardeners Magazine, Charles Hovey stated in 1835 that, "Country homes lack vegetables; it is only in city markets that one can find tomatoes, celery, cauliflower, broccoli, and hot house vegetables." More will be said later about the commercial vegetable growers who supplied these city markets.

After 1850, there was increased interest in all aspects of horticulture in the United States, including vegetable gardening. By consulting period seed catalogs and gardening books, a speculation may be made on the diversity of crops that might have been grown in a kitchen garden of about 1870. For this hypothetical garden, the reader may suppose that the owner is a rural resident in one of the northern states and that he is a "pro-

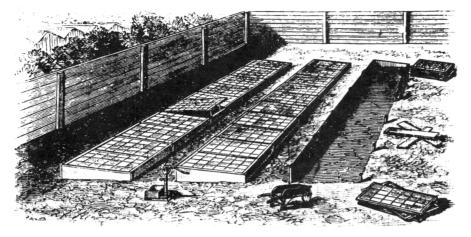


Fig.1. Cold frames protected from cold north and northwest winds by board fence.

gressive" rather than "average" farmer. A progressive farmer could be described as an individual who subscribed to one or 2 agricultural newspapers, a horticultural magazine, and who was active in his local or county agricultural society. A list of vegetables that he might have grown in his garden is presented in Table 2.

Three crops deserve special consideration. Early in the 16th Century, the tomato was carried from Central America or Mexico to Spain, and then dispersed to other parts of Europe. Considered to be poisonous by the English, the tomato was brought to the United States as an ornamental sometime prior to 1800. Although some individuals did eat the fruit at an earlier date, tomatoes were not consumed in quantity until after 1830, and even then, there were people who rejected them as unhealthful. After 1850, the crop became very popular with American gardeners (3, 10, 14, 31).

The white or Irish potato has a similar history. Transported from South America to Spain and later to other parts of Europe, the crop was adopted readily by the war-ravaged Irish peasants. It generally is believed that the potato was introduced into the United States by Scotch-Irish immigrants who settled around Londonderry, New Hampshire in 1719 (34, 33). There is some evidence, how-

ever, that potatoes were grown, at least to a limited extent, somewhat earlier than that.

The Indians of New England apparently did not cultivate true sweet corn, but it was raised by other tribes, including the Iroquois. When the Sullivan military expedition marched through western New York in 1779, Lt. Richard Bagnell collected sweet corn seed along the upper reaches of the Susquehanna River, probably just south of the New York-Pennsylvania state line. The seed was taken home to Plymouth, Mass., from where its use slowly spread. Bagnell's corn had 8 rows, white kernels, and a red cob (18, 14, 28, 37). Sugar corn, as it was more commonly called in the 19th Century, was not grown widely until after 1850, and white cultivars were far more popular than yellow ones until 'Golden Bantam' was introduced in 1902. Prior to 1850, and during the rest of the 19th Century, in some parts of the country, certain cultivars of flint, flour, or dent corn selected for flavor and eating quality were harvested in the milk stage for table use (37).

In every generation, there is a small group of individuals who possess the time, interest, and money to establish gardens that are larger and contain a more diverse selection of plant material than the average. Thomas Jefferson and George Washington were such individuals, and many more could be cited. They

raised vegetables and other plants that were considered exotic in their time, and they eagerly sought species and cultivars from distant lands. These individuals were the 1st to construct glass houses in which they could overwinter delicate plants or force out-ofseason fruit and vegetables. Since southern gentlemen took pride in their gardens and had an available source of inexpensive labor, many of the outstanding gardens of the 18th and 19th Centuries were located in the southern part of the country. Interestingly, it generally is concluded that the gardens of the poor white farmers or village residents in the South were inferior to those of similar individuals in the North (15).

To consume fresh vegetables throughout the entire year is a relatively new phenomenon, enjoyed only since the advent of the refrigerated rail car. Prior to that time, fresh asparagus, peas, and many other vegetables were luxuries eaten for one brief season each year. Residents of the northern states had to rely on dried, pickled or stored vegetables

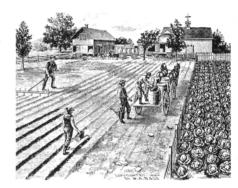


Fig.3. Watering the rows for seed planting.

during the long months of winter and early spring. Commercially canned vegetables, although available before 1850, were not produced in quantity until after the Civil War, and even then they were expensive. For example, a 2-pound tin of tomatoes sold for \$0.27 in 1870, a bargain today, but not by the standards of the time, when the average working man earned just over one dollar for a 10-hr work day (24). The Mason jar, patented in 1858, made home canning feasible, and during the last quarter of the century, home preserving was widely practiced (32).

Table 1. Vegetables grown in Massachusetts, 1630—1634. 1

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Fig.2. Setting plants in the field.

Old World crops

Turnips Muskmelons

Parsnips Cucumbers

Carrots Onions

Radishes Pot herbs

Field peas

New World crops

Squash Beans Pumpkins Field (Flint) corn

¹According to William Wood, New England Prospect, 1634.



Fig.4. Harvesting and field packing cauliflower in barrels.

Commercial vegetable production

Although vegetables had been commercially grown for many years, it was not until the 19th Century that the occupation emerged as a highly skilled profession in America. It is possible to divide 19th Century commercial vegetable growers into 2 more or less distinct categories: market gardeners, and truck farmers. As a group, market gardeners farmed at the very edge of a major city, raising high-value, perishable crops on land that was relatively expensive, while truck farmers grew crops that were less perishable on land located some distance from market, and consequently less valuable.

In 1865 and 1867, Peter Henderson, a well-known New Jersey vegetable grower, wrote about market gardening and classified vegetable crops, indicating whether each was generally grown by market gardeners or truck



Fig. 5. Market gardener carrying celery in a rope

farmers (16, 17). A brief summary of Henderson's classifications is presented in Table 3, along with information which Thomas DeVoe, a city butcher and marketer, compiled in 1867 on the availability of specific commodities on the New York City markets.

Farming as few as 5 to 10 acres and occasionally even less, market gardeners utilized intensive production practices to produce a mix of crops that would generate the highest possible return. Interplanting was commonly practiced to make the greatest use of every square foot of ground, and a succession of crops, often 3 and sometimes 4, was grown on each plot of land. Light-textured soil having a southern or southeastern exposure was preferred, to allow for early spring planting. To force plants in winter, start transplants in spring, prolong the fall growing season, and overwinter tender perennials, market gardeners constructed cold frames and hot beds, and after 1870, glass houses. It was not uncommon for a grower to own several hundred or even several thousand sash of cold frames and hot beds (0.9 x 1.8 m). Once harvested, the washed and graded produce was hauled to market in specially-designed wagons built to accommodate a large load. In addition to supplying the city markets, market gardeners provided quality produce for restaurants, clubs, hotels, and the passenger steamship lines. Some market gardeners also produced cut flowers, foliage plants, herbs, mushrooms and/or berries (1, 4, 13, 16, 17, 19, 26, 29, 30, 38).

Cold frames were built in sheltered locations and protected by buildings, tight board fences, or evergreen hedges from cold north or northwest winds. It is impossible to pinpoint the date when the first cold frame or hot bed was constructed, but it is known that they were used in England prior to 1700 (9), and hot bed sashes were sold in Boston in 1762 (33). Fermenting horse manure was the common source of heat for hot beds for most of the 19th Century, but after 1870, increasing use was made of wood or coal fires. The

1st glass house utilized for commercial vegetable production is said to have been built in Boston in about 1840 (33). Greenhouse construction, however, did not start in earnest until about 1870 or 1875. The area around Boston soon developed into the center of the glass house industry in the United States, and by 1900, over 200 acres were under glass in that area (2). Lettuce was the most important crop, followed by radishes, tomatoes, and cucumbers. A common rotation consisted of 2 crops of lettuce, a crop of radishes, and then either cucumbers or tomatoes. Glass house crops were particularly in demand during the Christmas holidays, and crops were planted to mature at that time. Glass house produce from Boston was shipped to other northeastern cities, where it commanded a premium price because of its high quality (40, 8, 19).

Since outdoor vegetable production provided most growers with their chief source of income, much attention was given to achieving the maximum possible production from each acre. Fast growing crops, such as radishes and spinach, often were sown in alternate rows with vegetables that took longer to mature, such as carrots and cabbages, so that one crop could be harvested and sold while the next was still growing (30, 29, 13). To protect tender young transplants in the early spring, small boxes or frames covered with one or 2 panes of glass were placed over individual plants in the field (5). To start seedlings of crops that are difficult to transplant, such as melons or cucumbers, seed was sown in the soil that clung to the dead roots of a piece of sod, placed grass-sidedown in the hot bed or on a greenhouse bench. The sod, measuring about 10 to 15 cm square, had been cut the previous fall and stored during winter in a shed or barn. At transplanting time, the entire square was planted (17). Hand-thrown clay flower pots were expensive, yet after the Civil War relatively affordable machine-manufactured pots were introduced and commercial growers purchased large numbers for starting transplants (29, 30). Berry baskets and small, bottomless wooden boxes also were utilized to start transplants (36).



ig.6. Market garden wagon fully loaded with vegetables.

A Farmer's Garden—1870
Table 2. A list of possible crops and some representative cultivars.

Asparagus Beans A. Snap green beans or string beans: Early Valentine, Mohawk, Rufugee, Case-knife (Pole), Wax Bean (Pole) B. Dry beans (probably grown as field crop): Dwarf Horticultural, Peabean, White kidney, Yellow-Eye C. Lima: Common Lima (Pole) Cabbages Early York, Early Wakefield, Large Late Drumhead, Late Flat Dutch, Green Curled Savoy, Red Dutch Cauliflower Corn A. Sugar or sweetcorn: Old Colony, Stowell's Evergreen, Darling's Early, Crosby (all had white kernels) B. Flour or Flint Corn: Tuscarora, Early Canada, Early Adams Cucumbers Lettuce Tennis Ball, Early Simpson, Brown Dutch, White Silesian, Green Paris Cos Melons A. Muskmelons: Green Citron (green flesh), Nutmeg (green flesh), Christiana (orange flesh), Pineapple (green flesh) B. Watermelons: Apple-seeded, Black Spanish, Ice-Cream Onions Red Wethersfield, White Portugal, Silver Skin (white), Danvers (yellow) Peas Early Frame, Prince Albert, Dan O'Rourke, Champion of England, Knights Tall White Marrow, Tom Thumb Carter, Garnet Chili, Long Red or Merino, Mercer Connecticut Field, Large Cheese, Mammoth A. Beets: Early Red Bassano, Early Blood Turnip, Long Blood Red B. Carrots: Early Horn, Long Orange, Altringham C. Parsnips: Guernsey, Hollow-crowned D. Turnips: Cow Horn, Early Flat Dutch, Purple Top Strap-leaved, White Stone E. Salsify: no named varieties F. Radishes: Early White Turnip - rooted, Long Scarlet, Long White, Black Spanish (winter) Spinach Squash Summer: Yellow Crookneck, White Bush Scallop Winter: Boston Marrow, Green Hubbard, Winter Crookneck Trophy, Fejee, Tilden, Large Smooth Red, Yellow Fig (for pickling)	Crop	Cultivar		
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Doub - 1-1				

¹Probably grown as a field crop.

Nineteenth Century market gardeners fertilized their soil with liberal applications of manure, largely supplied by the city livery stables. Often 50 and sometimes as many as 100 cart loads were applied to each acre of land annually. Horse manure was in such demand in the 1840's that it was shipped to New York City by boat from as far away as Albany (15). Market gardeners were among the first to import guano from Peru and, later, to use sodium nitrate, rock phosphate, superphosphate, and muriate of potash (19,26). Insect control was difficult, and at first, market gardeners and truck farmers dusted the foliage with ashes, lime, soot, or tobacco dust, often to no avail. Later, more potent poisons, such as Paris Green, were applied. Once it was determined that plant diseases were caused by microorganisms, vegetable growers sprayed with the fungicide Bordeaux mixture (19).

Vegetable growing has always been a labor-intensive industry, and this was certainly true in the 19th Century. Large numbers of people were employed to plant, hoe, weed, water, and harvest the many crops. Recent immigrants often were hired; at first the Irish, and later in the century, the Italians and Poles.

A number of market gardeners made statements during the last 3rd of the 19th Century

concerning the profitability of the business. Peter Henderson reported in 1867 (17) that, in his estimation, the average yearly profit over the previous 15 years from a well-managed market garden operation located near New York City was at least \$300 per acre. He also presented a cost and receipt statement for one acre of land for one season. The total receipts were \$1,340, derived from 3 crops: cabbage (\$600), lettuce (\$140), and celery (\$600). The total cost of production was \$605, broken down as follows: labor (\$300), rent (\$50), manure (75 tons, \$100), horse labor (\$35), seed (\$10), tools (\$10), and selling expenses (\$100).

Market gardeners often were highly respected individuals in their home communities, and many became prosperous businessmen. They were interested in advancing the science of vegetable production and frequently were active in local and state horticultural societies. The Boston Market Gardeners Association, the first of its kind in the country, was founded in 1886 (33).

Although many of the inhabitants of the rural countryside, towns, and villages grew vegetable gardens there was still a market in these areas for commercially-grown produce. This demand was satisfied by part-time commercial growers or by individuals who

sold surplus vegetables from their own gardens. Often, produce was peddled from door to door

In general, truck farmers transported vegetables over longer distances than did market gardeners, but because roads were poor during the 1st half of the 19th Century, the distance was not very great. Some produce did move by water; for example, on Long Island Sound to New York City, or along the Delaware River to Philadelphia (39). With the establishment of dependable rail service, the situation changed and it became possible to ship produce successfully for relatively long distances. Even before the Civil War, the Long Island Railroad and the Camden and Amboy Railroad (from Camden, New Jersey to New York City) ran express trains specifically for transporting perishable berries and vegetables (15, 21). Produce shipped to distant cities frequently was consigned to commission brokers, who acted as the growers' sales agents (36). The development of ice-cooled rail cars in the 1870s made it possible to ship produce for distances believed impossible only a few years before (39). It is interesting to note that some growers at first resisted shipping in iced cars because it was believed that ice ruined the taste of fresh vegetables (19).

Truck farmers tended to locate in specific areas where land resources, climate, and access to transportation facilities made vegetable production profitable (19, 39). One well-known area around the mid-part of the 19th Century was the so called "Pea-Shore", a strip of land stretching along the Delaware River near Camden, New Jersey. Besides quality peas, the area produced other truck crops, including asparagus, cucumbers, sweet corn, cabbages, tomatoes, turnips, carrots, melons, beans, and potatoes (21).

In general, truck farmers did not produce as large a selection of vegetables as did typical market gardeners; it was not uncommon for them to grow only one or 2 crops, such as onions or potatoes. Often, they raised vegetables as part of a general farming operation that might also include grain crops and livestock (15, 36, 12). In addition to raising fresh market vegetables, some truck farmers produced vegetables for local canners or pickle packers. Frequently, processors located in truck crop production areas



Fig.7. Rushing the last lot.

because of the supply of vegetables available. Tomatoes, sweet corn, peas, and green beans constituted the major crops that were canned in the last half of the 19th Century, while cucumbers, small tomatoes, and cauliflower curds were pickled (6, 24, 36).

Southern vegetable growers began to ship produce north from Savannah, Charleston, Norfolk, and smaller port cities during the 1st half of the 19th Century to cash in on the profitable early spring market. At that time, fast passenger steamships were the most reliable means of moving perishable produce to market, but items such as potatoes were commonly shipped in coastal sailing vessels (17, 27, 36, 39). After the Civil War, southern truck growers expanded rapidly, partly due to improved rail service and also to the vast labor pool created by recently-freed slaves who had migrated to the cities seeking employment (27). Express trains and through rail lines along the Atlantic coast made it possible to ship produce quickly to northern markets. For example, it took only 48 hr to move a rail car from Charleston to New York City. In the Midwest, produce moved north by rail, following the Mississippi River Valley (39).

Although Jacksonville had been a vegetable production center for some years, southern Florida did not become a major producer until the end of the 19th Century (39). Prior to this development, the earliest produce to reach the northern markets each spring came from the Bahamas, Cuba, or Bermuda (19, 27).

Produce was shipped south, as well as north. Cold winter temperatures in the northern states allowed growers to store certain vegetables for several months, then market them locally or at distant points. Root crops and cabbages were piled on the ground or in



Fig.8. Farmer's favorite.

Table 3. Availability of vegetables in New York City in 1867 and production patterns of typical market gardeners and truck farmers, 1865 to 1870.

Period of ^z		Commonly grown by ^y		
Crop	availability ^z	Market gardeners	Truck farmers	
Asparagus	April–June		A truck crop because of the large land require- ment.	
Snapbeans	April-November	Produced by both types of growers.		
Beets	All year	Young roots bunched and sold in spring.	Large roots harvested in late summer and fall. Stored and marketed throughout the winter.	
Beet greens	May-June	Sold by the bunch.		
Cabbage	All year	Important spring and early summer crop.	Late summer and fall crops. Heads stored and marketed in winter.	
Carrots	All year	Limited quantities of small-rooted cultivars forced in hot beds; young field-grown roots bunched and sold in spring and summer.	Large roots harvested during the fall, and stored roots sold in winter.	
Cauliflower	May-fall	Difficult to raise, but profitable.		
Celery	Fall and winter	Blanched stalks sold during the fall and stored for winter marketing.		
Cucumber	June-November	Hot bed fruit marketed in the spring. Transplants used for an early summer crop.	Summer and fall crops grown from seed. Pick- ling cucumbers produced for pickle makers.	
Eggplant	June-October	Limited acreage; profitable crop.	•	
Horseradish	All year	Limited acreage; profitable crop.		
Leeks	Winter	Blanched and sold in bunches.		
Lettuce	Spring-fall	Forced in hot beds and cold frames from fall to spring. Outdoor crop grown remainder of year.		
Melons		Limited acreage of spring musk-melons.	Summer muskmelons and watermelons.	
Onions	All year	Green onions sold in bunches. Grown from sets.	Dry bulbs for fall and winter markets. Grown from seed.	
Parsley Parsnips	All year Winter-spring	Popular 19th Century garnish.	Harvested in fall and stored, or dug in the spring.	
Peas	April-summer		Spring crop. Also raised for canners.	
Peppers	September-fall	Limited quantities grown.	Ripe fruit sold to pick- lers.	
Potatoes	All year	Spring crop for northern gardeners. After the Civil War, southern truck farmers supplied the market.	Important truck crop.	
Radishes	All year	Forced under glass in winter. Grown outdoors during growing season.		
Rhubarb	Winter-spring	Limited quantities forced in winter. Main crop in spring.		
Spinach		Popular green. Corn salad, gar- den cress, mustard, endive, and dandelion also grown.		
Squash		-	Both summer and winter types grown.	
Sweet corn	June-October		Common truck crop. Also grown for canners.	
Tomatoes	June-November		Popular crop. Also raised for canners and catsup processors.	
Turnips		Young roots bunched and sold in	Fall crop marketed or	

²The Market Assistant. Thomas De Voe. 1867. (Survey of the market situation in New York City) (7).
^yBased on contemporary reports by market gardners. Principal source: Gardening for Profit. Peter Henderson. 1867. (17).

spring and summer.

stored for winter.

shallow pits and covered with straw, then with soil. Potatoes were placed in cool cellars, and celery was stored in roofed-over trenches. Onions were kept in a dry loft. Toward the end of the century, increasing numbers of insulated storage buildings were constructed specifically for individual vegetable crops (4, 17, 19, 26, 30, 36).

It was important to offer only high quality produce because of intense competition. Items were sorted by size and appearance, neatly trimmed, carefully washed, and attractively packaged (13). Growers were advised to use clean, or better yet, new containers, and to develop a brand or trademamrk. A brand was considered to be especially important if one was dealing through a commission merchant in a distant city (26). Produce shipped by truck farmers was commonly packed in barrels (2½ bushels), slatted crates, boxes, or baskets of various sizes. Potatoes, sweet corn, and onions were sometimes placed in sacks. Used flour or sugar barrels, ventilated by cutting holes or slits in the sides, were popular shipping containers and were used for such diverse crops as beets, carrots, cucumbers, lettuce, and spinach (27, 36). Market gardeners were urged to use clean, tastefully painted wagons pulled by good looking horses in clean, bright harness (13).

The preceding is but a segment of our interesting history, and only generalizations can be made in such a brief treatment of the subject. More should be written on the continued development of the commercial vegetable industry in the United States in the early years of the 20th Century, because it was during the latter years of the 19th Century and the first of this century that the patterns of production and marketing that are familiar today evolved. As the population grew and the cities expanded, market gardeners were forced farther into the surrounding countryside, and soon little distinction existed between market gardeners and truck farmers. With improved means of refrigeration, produce could be more easily shipped for long distances or held for longer periods of time in storage than previously possible. The processing industry provided consumers with increasing quantities of canned and, later, frozen products to supplement fresh produce. The quantity and variety of vegetables available all year long increased with each passing decade, until the term "in season" became almost obsolete.

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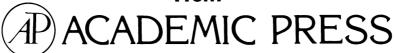
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