

An Overview of the North Carolina Organic Industry

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Introduction

Demand for organic food is growing within the U.S.. The Food Market Institute reports that about one-half of all U.S. supermarkets offer organic products for sale. Organic activists believe that organic food sales will continue to grow since surveys report rising popularity of organic foods among consumers and the array of organic products is expected to increase markedly over the next five years. During the 1990s, sales of organic fruits and vegetables have accounted for the majority of organic food purchases. According to the Organic Trade Association (OTA), a nationwide industry group based in Greenfield, Massachusetts, national organic sales for fresh fruits and vegetables increased at an average annual rate of 24 percent between 1991 and 1996. OTA estimates annual sales of organic foods at \$4.7 billion and predicts annual average growth at 24 percent over the three years (Allen, 1999). Research by Greene and Calvin (USDA, 1997) suggest that increased demand has encouraged national and regional supply expansion. In 1995, there were nearly 4,900 certified organic farms that raised organic food products in 45 U.S. states, or a 35 percent increase since 1992 (Dunn, 1997). Nationally, approximately 70 percent (640,000 acres) of 1995 certified organic farmland was utilized to grow horticultural, agronomic, or field crops (Dunn, 1997). Public concern about unacceptable risks associated with exposure to pesticide residues and continued concern about the ecosystem and the long-term sustainability of conventional agricultural production practices has spurred interest in organic production systems.

In 1997, the Organic Farming Research Foundation (OFRF) conducted a nationwide survey of certified organic farmers and reported that 57 percent of respondents grew organic vegetables, flowers, ornamental crops, 40 percent of respondents produced fruit, nut, and tree crops, and 27 percent of respondents raised livestock. The California Department of Food and Agriculture regularly collects organic production data and reported that between 1992 and 1995 the number of registered organic farms in California increased from 1,157 to 1,372 (19 percent), registered organic crop production increased 7 percent to 42,000 acres in California, and the value of California organic food production increased 26 percent to \$95 million (Klonsky, 1998). Many local organic growers, retailers, wholesalers, and environmental activists believe that sale of organic foods in North Carolina has expanded dramatically during the last five years. Approximately 80 growers and processors are organically certified in North Carolina and South Carolina, although fluctuations in numbers from year-to-year are common. Carolina Farm Stewardship Association (CFSA), the largest certifier in North Carolina, has reported a 25% average annual increase since 1994 in the number of farms receiving organic certification.

The primary goal of this study was to provide market-based data for the agricultural community so that informed decisions could be made about producing and selling North Carolina organic commodities. The majority of both conventionally grown and organic foods sold in North Carolina retail grocery stores are obtained from out-of-state suppliers. The North Carolina agricultural community could benefit if local growers supplied an increased proportion of agricultural foods sold in local grocery stores. However, market participants need additional information concerning particular items wanted by retailers and wholesalers, when and how much volume is desired, and what is the expected price.

A study goal was to collect market-based information that could assist the North Carolina organic industry obtain market assessment data. Currently, little information exists about the size, extent, and scope of the North Carolina organic market. In addition, natural food store retailers, wholesale suppliers, first handlers, and agricultural lenders desire organic industry trend information that can help them assess the status of the North Carolina organic industry. Market information was collected using several methods. First, respondents were asked a series of questions to obtain their insights, views and opinions about trends in the North Carolina organic industry. This information can be characterized as the qualitative portion of the survey. Second, a subset of respondents was asked to provide quantity and price data over a fifteen-month period. The combination of quantitative and qualitative data provides a comprehensive overview of the North Carolina organic industry. Retailer and wholesaler information collection efforts focused on sixteen specific organic fruit and vegetable items. The targeted sixteen commodities were identified through presurvey discussions with retailers who indicated that the commodities could be produced by North Carolina organic growers. In addition, retailers expressed interest in buying the targeted commodities from North Carolina growers. Organic field crop information collection efforts focused on eight organic field crops often handled in bulk by regional and national buyers. Through the survey process, we sought to discover the proportion and amount of organic produce purchased directly from local organic growers, the amount of produce bought from wholesalers and dealers, and possible differences in prices paid by wholesalers and prices paid by retailers for direct purchases. Qualitative and quantitative information provides a basis to assess the current market situation for organic products grown in North Carolina. The primary focus of survey collection activities centered on fresh fruits and vegetables since produce represents the greatest source of revenue for most natural food retailers. However, data were collected for other organic and natural food commodities, including livestock, dairy, eggs, and bulk handled items, and findings for all commodities are included in this report.

Organic Market Overview

History

In the early 1940's, Robert Rodale, author and publisher of several early works on organic crop production, was the first individual to use the term "organic" within the context of farming or gardening. Rodale was influenced by the work of Sir Albert Howard, an early 20th century agronomist who was one of the first researchers to recognize the importance of managing the crop and soil as a holistic system. Because of his work on soil fertility, Howard is often considered the father of organic farming.

For nearly 20 years, organic production practices remained a rarity among commercial growers and a novelty for home gardeners. However, in the early 1960's compelling evidence emerged that extensive herbicide and pesticide use adversely impacted wildlife and water quality. Dissatisfaction with conventional agricultural practices continued in the 1970s as chemical use intensified on many U.S. farms. During the late 1980s and early 1990's, interest in organic production expanded as media reports alerted consumers about unacceptable levels of pesticides detected on produce, extensive antibiotic and hormone use in animal production, and the increased prevalence of bioengineered foods.

Many organic advocates argued that natural and organic food sales expanded at this time because of health, nutrition, taste, lifestyle preferences, and eco-system concerns rather than fear (*1996 Fresh Trends Report*, The Packer). By 1996, nearly 600 organic producer associations were established in seventeen countries and organic foods were available to many consumers worldwide. Raterman (1996) estimated organic retail market share between 1.0 percent and 1.5 percent of U.S. grocery store sales. In Denmark, government initiatives and organic industry promotion efforts have increased organic market share to 3% of the total retail food market.

Prior to 1989, most organic and natural foods were sold in urban locations by independent specialty stores that serviced a niche clientele. As natural and organic sales increased, many traditional retail and wholesale firms expanded food lines to include natural, organic, and transitional products. Recently, Glaser, Krissoff, Lengyel, and Sheeran (*Vegetables and Specialties: Situation and Outlook Report*, USDA-ERS, November 1998) examined supermarket sales of frozen organic broccoli, sweet corn, green beans, and green peas over the 1991-96 period and reported that sales had increased 68 percent over the period. In contrast, supermarket sales of conventionally grown frozen broccoli, sweet corn, green beans and green peas were about constant or had declined slightly over the same period. To date, few studies have measured retail revenue obtained from the sale of natural and organic items but Brandt (1998) reported that U.S. organic produce sales at natural and traditional grocery stores approached \$670 million in 1998. Thompson (1998) and others believe that total U.S. sales of all non-conventional and organic products exceeded \$3.6 billion in 1998. Grocery stores increased the variety, mix, and amount of organic foods offered for sale because of opportunities to enhance revenue and profits, increased consumer demand, a desire to maintain sales growth and market share, and procurement of organic product was easier. Natural food stores, traditional retailers, and mainstream wholesalers target specific sets of shoppers for very similar reasons. An increasing proportion of shoppers remain concerned about long-term health issues, often consider long-term sustainability of food production systems before buying products, and wish to minimize harmful environmental impacts in the production and distribution of food products (Thompson, 1998).

The Organic Consumer

Several studies have noted that consumers were willing to pay price premiums for organically grown food (Estes and Smith (1996); Govindasamy and Italia, 1997). Higher prices suggest that higher income families would be the most frequent buyers of organic foods. Food consumption studies conducted by Thompson and Kidwell (1998) and the Hartman Group (1996) found that higher income households were the most likely group to purchase organic products. However, both studies found notable exceptions to this pattern. For example, the Hartman study also reported that households with an annual income of less than \$25,000 also bought greater-than-average amounts of organic food. The Hartman study reported that individuals over 40 years old and younger people under the age of 25 ('the young recyclers') had the highest propensity to purchase organic foods. Both the Hartman and Thompson studies reported that where a consumer shopped for organic foods influenced the decision to buy organic products. Increased availability of organic foods in mainstream grocery stores has also increased shopper awareness

about organic food availability but the market share of organic food sales remains relatively small at present, likely accounting for between 1% to 1.5% of U.S. retail food sales. PaineWebber (San Francisco) research noted that the number of natural food stores increased 14 percent between 1991 and 1996 while the number of traditional grocery stores increased only 3.3 percent over the same period. The emergence of urban and rural natural food stores, a taste preference for natural foods, and expansion of organic foods beyond fruit and vegetable items has motivated some consumers to purchase increasing amounts of organic foods.

Increased national and local consumption has created both opportunities and problems for growers, distributors, and retailers of organic and natural foods. Expanded demand for organic produce required improvements in distribution infrastructure as well as greater coordination among suppliers, distributors, and retailers. Growers, buyers, and consumers also sought more precise meaning for organic labels to ensure organic standards and rules were followed. Organic practices were implemented by growers to minimize soil erosion, protect water quality, reduce energy use, enhance worker safety, eliminate pesticide residues, promote biodiversity, and assist in the economic survival of small acreage or limited resource family farmers.

Estes and Smith noted that consumers purchase organic foods for a variety of reasons. At least three market segments exist for organic and natural products: 1) shoppers concerned primarily about health and nutrition issues; 2), consumers who advocate and support environmental protection and sustainable use of resources; and 3) shoppers who believe that organically grown food simply tastes better than conventionally grown food. Industry analysts also point out that organic sales have increased despite higher relative prices, irregular supply availability, and limited shelf space in mainstream grocery stores.

Organic Certification

Since 1989, organic industry efforts have focused on development of product standards for consumer items labeled as organic. The Organic Foods Production Act (OFPA) of 1990 created the National Organic Program (NOP) to establish and monitor national organic standards. The National Organic Standards Board (NOSB) was created by OFPA and requested feedback from the organic community to develop recommendations for national organic standards. Members of the NOSB were appointed by the U.S. Secretary of Agriculture for five-year terms. NOSB membership must consist of four farmers, two handlers or processors, one retailer, one scientist, three consumer or public interest advocates, and three environmentalists. The first meeting of the NOSB occurred in 1992. Between 1992 and 1997, the NOSB collected opinions and feedback from the public concerning development of rules for implementing OFPA. In December 1997, USDA released its proposed rules to govern the national organic program. Approximately 280,000 individuals provided USDA with feedback concerning the proposed NOP rules, and most comments were critical of the proposed program. Currently, USDA is revising NOP rules and is expected to release to the public revised NOP rules in late 1999. If accepted, NOP will be implemented and all growers and processors who label products as organic must comply with the national organic standards. A farmer who has sales of \$5,000 or less per year is exempt from mandatory certification under OFPA provisions

but may not label product as certified organic. Individual states have the option of implementing laws that are more stringent than federal standards but cannot discriminate against other states that have less stringent organic standards.

In 1995, the NOSB developed a recommendation concerning the definition of organic. In part, NOSB defined organic agriculture as “*an ecological production management system that promotes and enhances biodiversity, biological cycles, and soil biological activity. It is based on minimal use of off-farm inputs and on management practices that restore, maintain, and enhance ecological harmony. Organic is a labeling term that denotes products produced under the authority of the Organic Foods Production Act. The principal guidelines for organic production are to use materials and practices that enhance the ecological balance of natural system and that integrate the parts of the farming system into an ecological whole. Organic agriculture practices cannot ensure that products are completely free of residues; however, methods are used to minimize pollution to air, soil, and water. Organic food handlers, processors, and retailers adhere to standards that maintain the integrity of organic agricultural products. The primary goal of organic agriculture “is to optimize the health and productivity of interdependent communities of soil life, plants, animals, and people.”*”(Organic Foods Production Act: A Guide to Recommendations of the NOSB, as discussed by the Organic Trade Association in 1995 pamphlets).

Organic Trade Association (OTA) pamphlets indicated that the term organic can be applied to fruits and vegetables, medicinal and culinary herbs, bulk grains for livestock and human consumption, and livestock, including eggs and dairy. Processed foods can be labeled organic if 95% of the ingredients, by weight, are considered organic. Companies may also advertise on the front label that their product contains organic ingredients if those ingredients comprise at least 50 percent, by weight, of the total product weight. Products with less than 50 percent organic ingredients may label the organic components on the ingredient panel.

Organic certification is a systematic process by which an independent third party assesses and confirms that production practices of an operator satisfy and comply with the standards set by the certifying entity. Certification protects buyers and consumers against misrepresentation of goods as organically produced. According to OTA, there are 44 organizations in the U.S. that certify producers and processors of organic foods, including eleven state Departments of Agriculture that operate organic certification programs.

Although each certification organization has developed its own standards of production, the process of becoming certified is often similar. After requesting a certification standards and application form, a grower submits a completed application form. Information requested includes a written farm and soil management plan. The plan assures certifiers that operators are able to continue production within established standards despite changing conditions. Certifiers review the application and conduct an on-site inspection. Certification will be granted pending a final review and will remain valid for one year after issuance. Certification fees vary by organization and organizational membership may be required. Reinspection and review occurs annually (Sligh, 1997). Certifiers active in North Carolina include Carolina Farm Stewardship

Association (CSFA), the Organic Crop Improvement Association (OCIA), Oregon Tilth Certified Organic (OTCO), and Quality Assurance International (QAI).

Organic Commodity Overviews

Livestock (Beef, Poultry, & Dairy)

The term livestock includes beef cattle, poultry, swine, sheep, goats, fish, wild or domesticated game, and horses used as draft animals (OTA). Standards for organic production of livestock are intended to ensure the animals are raised in accordance with conditions that limit stress and maintain animal health. Organic grains must be fed to organic livestock. Concessions are granted for extreme situations that may limit availability of certified feed because of fire, flood, or severe drought. In such circumstances, cattle producers can substitute conventional feed for organic feed up to a maximum of 20 percent. All livestock is subject to USDA and NCDA & CS inspection, irrespective of the producer's certification status. Producers interested in selling beef or poultry are advised to contact the North Carolina Food and Drug Protection Agency to ensure compliance with state and federal laws before applying for organic certification. Currently, no state legislation exists for organic labeling on beef, poultry, and dairy. Certifying organizations are allowed to label these products without state approval until federal organic standards are enacted. Although retailers may market beef, poultry, and eggs with a 'natural' label and poultry and eggs with a 'free-range' label, state approval is not required and third party verification standards do not exist.

Beef

Recent USDA approval of organic certification for beef and poultry has created new market opportunities for organic meat producers as well as organic feed grain suppliers. Because the term 'organic' can now be applied to beef, national and North Carolina market opportunities are expected to increase. Currently, there are two certifications for beef: 1) organic; and 2) hormone and antibiotic-free. Nationally, Coleman Beef and Laura's Lean Beef are two companies that sell hormone and antibiotic-free beef. Carolina Natural Beef, a grower cooperative in western North Carolina, is the only certified hormone and antibiotic-free livestock operation in the state (Breaking New Ground, 1999). It is uncertain if these companies also will certify their beef as organic. Local growers have expressed interest in expanded organic beef production, but growth is restricted, in part, because small-scale meat processing facilities do not exist that can ensure organic processes are maintained. In addition, beef producers are often unable to obtain consistent supplies of organic feed.

Dairy

Several national organic dairies contribute products to the North Carolina milk market including Horizon Dairy located in Colorado, Organic Valley in Wisconsin, and Organic Cow in Vermont. Organic dairy products are popular with consumers and oftentimes demand exceeds supply availability. The Organic Research Foundation recently surveyed nearly 1,200 certified organic farmers located throughout the U.S. Of the 29 organic milk

producers, the median reported price was \$17.10 per hundredweight (ORFS, 1997). North Carolina Agricultural Statistics (1998) indicated that a record low number of dairy cows (75,000) were on-farms in North Carolina and N.C. cash receipts from milk sales was near record-low levels (\$187 million). Conventional North Carolina dairy producers received, on average, \$15.10 per hundredweight for fluid milk sold in 1998. Limited quantities of organic milk supplies dictate that retailers sell conventional milk and milk products obtained from out of state suppliers. Maple View Farms of Hillsborough, N.C. offers milk for sale that is recombinant Bovine Growth Hormone (rBGH) free and is the only N.C. dairy to offer local, direct milk sales to stores.

Poultry

Currently, poultry are marketed as free range, natural, hormone and antibiotic-free, and organic. Mandatory USDA inspection involves evaluation of qualities related to wholesomeness. Grading is a voluntary service that is paid for by the poultry processors and is performed by certified USDA graders. Grades are assigned based on the quality and consistency of the product. North Carolina has five locations that will grade poultry for a modest user fee. Poultry grades are assigned on the basis of the following quality factors: confirmation, flashing, fat covering, exposed flesh, defeathering, broken bones, missing parts, and freezing defects. There are no certified organic poultry producers or processors located in North Carolina. Farm operators are allowed to process up to 10,000 birds per individual on the farm if appropriate disposal and handling practices are followed. The same growth constraints exist for poultry as they do for beef.

Eggs

There is no mandatory inspection for eggs in North Carolina, nor is a license required to grade eggs. Farmers may perform this service themselves if they choose to sell directly to consumers. Alternatively, farmers can elect to have a licensed grader review eggs after inspection in order to receive the USDA trademark. There are currently 5 “shell egg plants” located in North Carolina that will certify shell eggs according to quality, quantity, size, temperature, packaging, and other factors. Farmers are expected to grade in accordance with state standards. However, if a farmer is discovered to misrepresent product, then the farmer is subject to investigation conducted by the NCDA & CS Board of Agriculture. Additional details about egg inspection can be obtained from examination of the North Carolina Egg Law, the North Carolina Egg Tax Law, and the U.S. Egg Surveillance Act. At the state level, certification programs permit the labeling of organic eggs. Special concessions were made for the labeling requirements of eggs to allow producers to include the term ‘organic’ on the label. Producers who sell organic eggs in North Carolina include Latta’s in Orange County, Pilgrim’s Choice from Pennsylvania, and Organic Valley located in Wisconsin. Certified organic eggs can be shipped across state lines and marketed as organic. Proposed federal standards for organic eggs require that eggs must come from poultry stock that has been raised under organic production practices from one day old (Sligh, 1997).

Produce

Retail outlets, community farmers' markets, restaurants, and wholesale distributors provide organic growers with an opportunity to sell fresh produce to North Carolina consumers. The State of North Carolina, through the North Carolina Department of Agriculture and Consumer Services, operates four farmers' market facilities located in Asheville, Charlotte, Colfax (the Triad), and Raleigh (the Triangle). There are also approximately eighty community farmers' markets that operate on a seasonal basis throughout the state. North Carolina farmers raise substantial quantities of perishable fruits and vegetables and an increasing proportion of the fruits and vegetables are grown using organic production practices. The preliminary survey portion of this study identified 27 natural food store retailers and 5 organic wholesale operations that carried extensive lines of organic fruits and vegetables. Organic production has expanded to include other horticultural crops such as greenhouse vegetables, ornamentals, and Christmas trees.

Field Crops

Organic field crops are used in processed and manufactured foods as well as a feed for organic livestock. Field crop production offers the advantage that a large volume can be grown with few hired laborers, the crop is storable, and production costs are relatively modest. However, because of large acreage plantings, field crops often rate highly as large consumers of limited soil, water, and resources within the agricultural community. In 1998, North Carolina growers planted nearly 4 million acres of field crops with only a limited but unknown quantity of acreage grown using organic methods. While determinants of profits include yield per acre and costs of production, profits are also greatly impacted by price. Dobbs (1998) reported that organic oat, corn, wheat and soybean growers in the Midwest received significant price premiums for their crops when compared with conventional crop prices. Survey findings, reported in a later section of this report, indicated that organic soybean growers received two times the price that conventionally grown soybean grower received over the 1995-1997 period. Additional discussion about organic field crops is contained in the bulk field crop section of this report.

Tobacco

Organic tobacco production has expanded rapidly in North Carolina. Sante Fe Natural Tobacco Company is a large buyer of organic flue cured and burley tobacco and expects to buy about 225,000 pounds of organic tobacco in 1999. In 1990, Sante Fe purchased less than 7,100 pounds of organic tobacco. Organic tobacco is grown in accordance with CFSA certification standards and leaves are randomly chosen to undergo residue testing. In 1998, organic tobacco farmers received \$3.85 per pound for organic tobacco, or a price that was 217 percent of the 1998 season average price for all conventionally grown tobacco (\$1.77 per pound). Currently, a maximum amount of \$4.00 per pound is paid for organic tobacco. Sante Fe Natural Tobacco, based in Oxford, North Carolina, has stated its intentions to increase purchases of organic tobacco in 2000.

Organic Technical Support

Infrastructure for technical support to organic growers is provided both by public and private organizations. Private organizations such as CFSA organize an annual conference on sustainable agriculture. CFSA conducted three regional grower schools in 1998 that provided growers with basic organic production and marketing information. CFSA also organizes regional farm tours for consumers and growers to introduce them to sustainable and organic production practices. CFSA programs and meetings include lectures by experienced organic growers, presentations by academic researchers, and on-farm tours and demonstrations. In 1998, approximately 4,000 people attended CFSA sponsored activities. CFSA can also provide organic certification for growers. The CFSA organic certification coordinator provides organic growers with technical production assistance. In addition, the coordinator, grower committee, and inspectors provide farmers with production, marketing, and soil management support. The Center for Environmental Farming Systems (CEFS) is dedicated to the research and development of farming systems that are environmentally, economically, and socially sustainable. CEFS is located in Goldsboro, N.C. and is funded jointly by North Carolina State University, North Carolina A&T State University, and the North Carolina Department of Agriculture and Consumer Services. Approximately 80 acres of land are certified for organic production at the CEFS. In 1998, a Sustainable Research and Education Professional Development Program (SARE-PDP) grant funded training for county extension agents concerning organic farming systems. Currently, efforts have focused on development of an organic systems training manual that can support county extension agents as they provide production assistance to organic growers. A collaborative effort involving farmers, the North Carolina Cooperative Extension Service, and Central Carolina Community College (CCCC) in Pittsboro resulted in establishment of a sustainable farming curriculum and offers a farm stewardship certificate for completion of the program. The CCCC sustainable farming program was designed to develop technical and entrepreneurial skills needed to operate an environmentally sound and profitable agricultural enterprise. North Carolina Cooperative Extension Service specialists and researchers offer educational programs that can assist county agents and growers to improve organic cultural practices.

Study Objectives

As mentioned previously, there is a lack of market data that can assist producers evaluate markets and determine which organic crops can be sold effectively in North Carolina. In 1994, Estes, Herrera, and Bender conducted a survey of twenty North Carolina specialty grocery retailers to obtain their views about customer preferences, expected sales growth, and supply procurement problems associated with fresh fruits and vegetables. The earlier survey provided the foundation for development of the qualitative portion of the current survey. The qualitative portion of the current survey requested respondents to provide opinions and views about the North Carolina organic industry. The earlier survey did not collect any quantitative data such as the amount of organic products bought or prices paid to organic growers. Thus, an objective of the current study was to obtain volume, price, and source of produce purchased by retailers and wholesalers. The current study also expanded the focus of the earlier study to include organic bulk commodities, beef, dairy,

poultry, and eggs. The primary goal of the study was to provide market-based data for growers, lenders, and retailers so that intelligent decisions could be made concerning the production and marketing of local organic commodities available to North Carolina consumers.

Survey Methods

Survey procedures consisted of four distinct parts. Initially, an advisory committee developed a two-page pre-interview survey that was administered to natural food retailers in the early fall of 1998. The goals of the pre-interview survey were to understand the methods by which organic items were purchased, obtain specific details about the buying process, learn the extent to which purchase records were kept by retailers, discover cooperator willingness to share purchase data with us, and elicit suggestions about survey questions. The second part focused on collection of price and quantity data for selected commodities over an extended time period. This portion was identified as the quantitative portion of the survey and requested data for sixteen commodities over a fifteen-month observation period. The third part consisted of a 39-question qualitative survey based on questions asked in the 1994 study. The goal of the qualitative component was to obtain respondent opinions about organic trends, their perspective about consumer attitudes, their assessment of the North Carolina organic industry, and possible motivations to purchase local organic items. The fourth part focused on collection of organic field crop information. Organic field crops are often handled in bulk and for this report field crop data was labeled as bulk commodity information.

Retail organic outlets were identified through inclusion in the CFSA *Green Book* publication, CFSA staff, the 1994 study, and Central Carolina Community College Sustainable Farming Program staff. Survey participants also provided names that allowed us to identify additional retailers, wholesalers, and bulk handlers that operated in North Carolina during 1998. The exploratory committee identified a total of 27 natural food retail grocery stores, 5 wholesale, and 23 field crop bulk companies buyers as potential study participants. Retail and wholesale participants indicated that they obtained a majority of revenue from the sale of natural foods, organic products, and specialty items. Telephone contact with each firm resulted in the identification of one individual (experienced clerk, produce manager, owner, or store manager) who was designated as the survey contact.

Presurvey discussions with participants identified fifteen organic vegetables and one organic fruit crop as items that were purchased from North Carolina growers. These items represented the highest volume products usually purchased from local producers. Conversations with retailers, however, revealed that 17 of 27 retailers purchased less than \$2,000 in organic fruits and vegetables from local growers each year. Collection of quantitative data from retailers who bought less than \$2,000 per year in local organic produce would be time-consuming and, in aggregate, would contribute little information in assessing the overall market for organic fruits and vegetables. Therefore, weekly quantity and price data were not collected from retailers who bought less than \$2,000 per year in local organic produce. The qualitative portion of the survey (39 questions) was administered to all 27 natural food store retailers. In the bulk survey, 23 buyers were

identified. We were able to contact representatives of 16 companies. Of the 16 firms contacted, three companies stated that they did not buy organic products from North Carolina growers. Thus, field crop survey responses were obtained from 13 firms. The bulk survey consisted of 15 short-answer questions and all information was collected via telephone. In summary, qualitative survey responses were obtained from 27 retailers and five wholesalers, weekly quantitative data were collected from ten retailers, and bulk data were collected from 13 distributors.

Retailer and wholesaler questions differed only slightly in phrasing and focus. Precise word meanings and definitions were provided to all respondents during the survey. The five wholesalers were asked to provide responses to the qualitative and quantitative portions of the survey. Most survey information was collected via a combination of personal visits and telephone conversations. All respondents were assured that answers and opinions expressed were confidential and an individual could decline to answer any question. If a contact declined to answer then a 'no response' designation was recorded. If information was not available, then the 'not available' designation was noted. The combination of 'no response' and 'not available' resulted in fewer than twenty-seven responses for some questions in the retailer survey and less than five responses in the wholesaler survey.

A copy of each survey instrument used to conduct the retail, wholesale, and bulk crop survey is attached in the Appendices of the report. Survey information was obtained from all participants between October 1998 and March 1999. Beyond the core set of natural and organic retailers and wholesalers, potential respondents could have included selected mass-market supermarkets and mainstream retail chain grocery stores that sold limited quantities of organic produce, community and state-operated farmers' markets, food service distributors, independent convenience stores, and traditional wholesalers. However, these respondents were excluded from the survey because of limited time and resources, the belief that natural and organic food sales constituted less than 50 percent of their total revenues, and the small quantity of fresh produce usually purchased from local growers. In addition, food procurement policies, product flow-to-market patterns, customer base, and pricing policies likely differed between natural food grocery stores and other market outlets so limited resources were directed toward the set of firms that relied on organic and natural food sales to obtain income. While most surveyed retailers were independently owned and operated, several grocery stores had common ownership. Despite common ownership, however, individual stores operated rather independently and often had the flexibility to purchase fresh produce from local producers.

Retailer Survey

To obtain a broad overview concerning the mix and variety of foods offered for sale at each store, respondents were asked to provide sales estimates for several conventional (if sold), organic, and natural food categories. The identified food categories were organic fresh fruits and vegetables, organic or non-conventional beef, poultry, dairy, and eggs. Among survey respondents, twelve retailers sold only organic produce while the remaining 15 retailers offered a mix of produce items that at times included organic, transitional, and conventionally grown fruits and vegetables. Six stores indicated that

they identified and regularly sold transitional produce. Most stores (19) started operations after 1989 but seven stores operated prior to 1989 and one store opened for business in the mid-1970s. Thirteen of the nineteen retail stores that were established after 1989 opened between 1992 and 1995. Twenty-six of the twenty-seven stores (96%) sold naturally produced eggs and dairy products while twenty-two stores (81%) offered customers naturally raised poultry. Only thirteen of twenty-seven retailers offered shoppers naturally produced beef. Annual sales estimates for organic or non-conventional raised poultry, dairy products, eggs, and beef products and expected sales increases over the next two years are contained in Table 1.

Table 1. Estimated 1998 sales of organic foods, by category, for North Carolina natural food store retailers surveyed and the expected increase in sales between 1999 and 2001.

Natural & Organic Foods	Annual sales, 1998	Expected % sales increase by end of 2001	Number of respondents
Poultry	\$1,653,150	18.0	17
Dairy products	\$1,526,904	20.5	18
Eggs	\$405,368	17.9	19
Beef	\$385,000	20.0	13

Seventeen of twenty-seven stores offered organic or non-conventional or naturally raised (free-range) poultry for sale. Aggregate annual sales of poultry were estimated to be about \$1.65 million dollars in 1998 and respondents expected sales to increase an additional 18 percent during the next two years (Table 1). Eighteen stores offered customers organic dairy products. Organic dairy sales were estimated at \$1.53 million and respondents expected dairy sales to increase 20.5 percent during the next two years, the largest of any food category. Annual revenue from eggs was much lower than for other food categories but in excess of two-thirds of the stores (19 of 27) stocked naturally raised eggs. Slightly less than one-half of the stores (13 of 27) sold organic or non-conventional natural beef but retailers also expected beef sales to increase 20% over the next two years.

To better assess the market, retailers were requested to provide more detailed information about organic fruit and vegetable sales than was requested for other food categories. Typically, retailers procure fresh organic fruits and vegetables in two ways: 1) they purchase products and quantities directly from local organic growers; and 2) they purchase desired items through an organic food wholesaler or broker. Limited detail contained in produce records made estimation of all produce purchases and sales (that is, both direct local purchases plus wholesale purchases) difficult. Therefore, we requested that retailers provide us with direct grower-to-store purchase information while we asked wholesalers to provide sales information for fruits and vegetables sold to North Carolina retailers. Thus, organic fruit and vegetable quantity and price information was obtained from both retailers and wholesalers. While these methods do not ensure precise measurement of fruit and vegetable purchases, it was believed that direct purchases and wholesaler records might provide a fairly comprehensive record of fresh fruit and vegetable purchases over the 15-month period. Wholesale fruit and vegetable findings

will be discussed more extensively in the wholesale section of the report. In addition, retail and wholesale estimates will be combined and discussed in the wholesale section.

As an initial question, retailers were asked to estimate total organic and conventional fresh fruit and vegetables sales for a one-month period during the summer, that is, a month when fresh fruits and vegetables were likely to be available from local growers. Additionally, retailers were asked to separate organic and conventional amounts. Five respondents did not provide requested sales estimates. Twenty-two of twenty-seven retailers, however, did provide a monthly sales estimate and a breakdown of conventional versus organic produce sales. The twenty-two retailers who provided total fresh fruit and vegetable sales (for conventional, organic, and transitional) for one month in the summer of 1998 indicated that collective sales were slightly in excess \$746,500. Retailers indicated that approximately 57 percent of total fruit and vegetable monthly sales (\$425,200) were associated with sales of organic and transitional produce. The remaining 43 percent of produce sales (\$321,450) were associated with sales of conventionally grown fruits and vegetables. Retailers reported a wide range in monthly produce sales. Most retailers reported modest monthly sales amounts but four respondents indicated that monthly produce sales exceeded \$50,000 during the summer. Retailers were not asked to provide annual fruit and vegetable estimates. However, extrapolation of monthly sales data for the twenty-two retailers suggests that annual organic and conventional produce sales could exceed \$8.9 million in 1998. Of course, the \$8.9 million sales estimate likely overestimates annual fresh fruit and vegetable sales since sales for one summer month are likely to be greater than sales for other months in other seasons. Nevertheless, if annual produce sales were assumed to be \$8.9 million and organic sales comprise 57 percent of total produce sales, then annual organic produce sales for the sampled respondents would be slightly in excess of \$5 million for 1998.

Retailer-Grower Interaction

Retailers were asked how they usually obtained organic produce supplies. Most retailers stated that their produce sourcing method varied by time of year and by commodity. Twenty-five of twenty-seven retailers indicated that they preferred to buy North Carolina grown fruits and vegetables. The most frequently cited reasons for a local purchase preference included a desire to support local agriculture and the local community, local buying extended shelf life and prolonged product freshness, and less spoilage and waste. Most retailers believed that local produce was oftentimes superior in appearance and quality to supplies obtained elsewhere, at least in the terms that they used to define quality. Two retailers did not prefer locally grown produce and cited poor communication with local growers as the primary reason. Both retailers had utilized local growers in the past but indicated that local growers did not keep them informed about item availability, did not deliver items in a timely manner, and contacted them only when a favor was requested. While a majority of retailers expressed a clear preference to buy from local growers, twenty-six of twenty-seven retailers also indicated that they utilized the services of a produce wholesaler or broker at some time during the year.

Retailers were asked to identify the proportion of produce obtained from various suppliers on an annual basis. On average, respondents indicated that they obtained 42

percent of total produce supplies from wholesalers, dealers, and brokers who handled only organic fruits and vegetables, 38 percent of produce purchases were obtained from wholesalers, dealers, and brokers who handled conventionally grown fruits and vegetables as well as organic and transitional items, about 16 percent was purchased directly from growers, and 4 percent was obtained from other unidentified sources. Thus, on average, retailers indicated that four-fifths of the produce they purchased for resale was obtained from wholesalers, dealers, and brokers. Retailers indicated that they did not buy more local organic produce because of its limited availability (both variety and timing of availability) and uncertainty about quantities available from local growers. Retailers understood the highly seasonal nature of local produce production and pointed out that sometimes it was simply easier to obtain needed quantities with one phone call to a wholesaler rather than multiple calls needed to locate items, arrange delivery, and negotiate prices. Typical seasonal harvest patterns combined with unpredictable local weather influences can result in unexpected and inconsistent supply availability for retailers. Several larger volume stores also noted that the delivered price for California-grown fruits and vegetables was similar to the price they paid for local produce but a wider array of commodities was available from California suppliers.

Despite widespread reliance on wholesalers to supply fresh fruits and vegetables, all but two retailers expressed a strong desire to work with local growers and to purchase more local fruits and vegetables when product was available. When buying locally grown items, eighteen retailers indicated that the initial sales contact was made by a local grower while nine of the retailers stated that they initiated the commodity request to a grower. Among retailers who bought produce directly from growers, about two-thirds indicated that they dealt with five or fewer growers while only four larger-volume retailers indicated that they purchased produce from more than ten different growers. Twenty-four of twenty-six retailers who utilized the services of a wholesaler or broker indicated that fewer than five wholesale or broker firms were utilized in 1998. One larger volume retailer indicated that they used between six and ten different produce wholesalers and brokers during 1998. Several retailers also noted concern about the common practice of long-distance shipment of produce, especially from California. Retailers indicated that long distance shipments tended to waste limited natural resources, contributed to air pollution, and limited market access for local growers. Overall, retailers were quite pleased with appearance, quality, and freshness of local supplies so complaints, if any, tended to focus on uncertain availability, dependability, and reliability issues. Retailers believed that regular interaction and dialogue between retailers and growers would promote sales for both. Meaningful dialogue occurred most frequently when growers were located near the retail stores.

Local Purchase Data

In addition to sales information, the quantitative portion of the survey sought to obtain more detailed purchase data for locally supplied organic fruits and vegetables over a 15-month period. In particular, retailers were asked to provide weekly quantities of produce bought from North Carolina (local) growers and the price paid to growers for 15 popular organic vegetables and one organic fruit over the 15-month period. Some retailers indicated that they stocked certain items only seasonally (when local supplies were

available) while other retailers stated that it was difficult for them to retrieve weekly purchase information by commodity. For selected retailers, local organic produce purchase data were obtained through joint efforts involving store personnel and a survey team member. Weekly quantity purchased and prices paid data for local purchases of sixteen organic fruits and vegetables were collected between October 1997 and December 1998. In theory, the quantitative data set could be extensive since 10 firms were asked to provide information about 16 commodities over a 15-month period. In reality, however, many of the commodities were not grown in North Carolina on a year-round basis and few stores purchased local items every week. For convenience, Table 2 summarized the number of retailers reporting at least one weekly local organic purchase in a month over the fifteen-month study period.

Table 2. Number of North Carolina retail grocery survey participants who provided quantity and price data at least once during each month over the October 1997 through December 1998 period (maximum number is 10).

Month & Year	Number of Retailer's Reporting Purchases	Percentage of Total
October 1997	5	50.0
November 1997	4	40.0
December 1997	3	30.0
January 1998	2	20.0
February 1998	2	20.0
March 1998	4	40.0
April 1998	7	70.0
May 1998	9	90.0
June 1998	10	100.0
July 1998	9	90.0
August 1998	10	100.0
September 1998	9	90.0
October 1998	9	90.0
November 1998	6	65.0
December 1998	4	40.0
Total	92	62.3

Table 2 information indicates that five of ten cooperating retailers provided sales volume and price information for at least one-week of the four-week October 1997 observation period (50%), four of ten retailers provided sales volume and price information for at least one of four weeks in November 1997 (40%), and so forth. As one would expect, many retailers purchased most items directly from local organic growers during the May through October period. This period coincides with peak production and harvest period for many North Carolina fruits and vegetables. Conversely, fewer retailers directly purchased local organic products during the winter months (December, January, and February). Winter is a time when only a few organic fruits and vegetables can be grown successfully in North Carolina. From a broader perspective, it is important to recognize that the October 1997 through December 1998 data set represents information collected

from only ten of twenty-seven respondents since seventeen retailers did not exceed the \$2,000 per year minimum in direct produce purchases that we established in the survey. Using retailer provided data, the amount bought, the average price paid to growers, and total dollar expenditure by commodity over the fifteen-month period are summarized in Table 3.

Table 3. Quantities bought, dollar expenditures, and weighted average price for 16 organic fruits and vegetables items that were purchased directly from North Carolina growers, between October 1997 and December 1998.

Commodity	Quantity Bought (pounds)	Dollar Expenditure	Average Price Paid per Pound
Tomatoes	24,247	\$22,938	\$0.95
Leaf lettuce	19,999	\$16,901	\$0.85
Kale/ Swiss chard	2,811	\$2,920	\$1.04
Blueberries	2,618	\$4,491	\$1.72
Zucchini	1,636	\$1,343	\$0.82
Bell pepper	1,242	\$1,549	\$1.25
Cabbage	1,012	\$413	\$0.41
Sweet corn	840	\$286	\$0.34
Cucumber	753	\$525	\$0.70
Broccoli	709	\$779	\$1.10
Potatoes	640	\$477	\$0.75
Carrots	391	\$195	\$0.50
Salad Mix	356	\$1,787	\$5.02
Watermelon	253	\$99	\$0.39
Sweetpotato	165	\$188	\$1.14
Cantaloupe	48	\$24	\$0.50
Total	57,720	\$54,915	\$0.95

Surveyed retailers directly purchased from North Carolina organic growers in excess of 57,700 pounds of organic fruits and vegetables over the 15-month period. Among retailers, the selling unit for a commodity varied somewhat. For example, one store might sell carrots on a count or bunch basis while another store might sell carrots by weight. In other instances, multiple size packs were purchased. For example, cucumbers were purchased in a variety of containers ranging from small cartons for select grades to bushel containers. To standardize units and facilitate price comparisons, quantity data were converted to a single sales unit using standard conversion rates and container weights contained in the *Weights, Measures, and Conversion Factors for Agricultural Commodities and Their Products* (USDA-ERS, Agricultural Handbook Number 697, June 1992). Similarly, wholesalers tended to use a variety of standard and non-standard shipping containers. For convenience, the above-mentioned USDA publication was used to convert various shipping containers into a common reporting unit. In some cases, the commodity-reporting unit is nonstandard. For example, cabbage is often sold in 50 pound sacks, wirebound crates, or cartons. However, the standard reporting unit for cabbage

used in this report is 45 pounds. Therefore, careful attention to both the reporting unit and the associated unit price is necessary.

Since direct purchase amounts were limited, Table 3 quantities are listed in actual pounds rather than bulk (carton, bushel, or case) amounts. Prices paid for direct purchases of organic products are listed in dollars per pound. Few organic fruit items were included in the local purchase list of sixteen commodities because retailers indicated that only limited quantities of organic fruits were available from local growers. In addition, the *1998 Fresh Trends Report* published by The Packer (Vance Publishing Co.) indicated that among consumers who buy organic produce regularly, shoppers were three times more likely to buy an organic vegetable than an organic fruit. Retailer responses revealed that fresh market tomatoes and leaf lettuce were the most popular vegetables purchased from local suppliers. Tomato and leaf lettuce expenditures accounted for about 72 percent of total expenditures over the period. Average price paid was obtained through a volume-weighted method rather than simply averaging of individual prices reported. Average price was calculated as the result of total expenditures divided by total quantity sold. Total expenditures were calculated as the summed product of individual quantities purchased multiplied by the price paid. Relatively few pounds of salad mix were bought but salad mix commanded the highest price per unit with retailers paying around \$5.00 per pound. Watermelon, sweet corn, and cabbage growers received the lowest prices per pound paid by retailers, usually less than \$.40 per pound. Few retailers reported local cantaloupe, watermelon, and sweetpotato purchases so there are few observations for these commodities. It is uncertain why so few local purchases of organic melons and sweetpotatoes were made. It is possible that few organic melons and sweetpotatoes are grown in North Carolina and these crops are not available for retailers to purchase locally. It is also possible that growers may elect to sell organic melons and sweetpotatoes through farmers' markets or roadside stands rather than to retailers.

After quantity and price data were obtained for the sixteen commodities, retailers were asked to identify other local organic fruits and vegetables that they desired to buy directly from North Carolina growers. Each retailer was asked to provide a quantity estimate for each commodity mentioned. Retailers identified a total of thirty-three fruit and vegetable commodities. The list of commodities and the associated volume estimates are summarized in Table 4. Individual commodities are listed from largest to smallest volume requests stated by retailers.

Table 4. Annual volume of organic fresh fruits and vegetables sought by North Carolina retailers, in pounds.

Commodity	Annual sales volume (lbs.)	Response Designation¹
Apples	64,950	C
Peaches	52,560	B
Garden Peas	30,370	A

¹ Response designation letter indicates the number of retailer responses included to obtain the annual volume estimate. The 'A' designation means that five or fewer retailers provided a volume estimate, the 'B' designation means that between six and ten retailers provided a volume estimate, and the 'C' designation indicated that more than eleven retailers provided a volume estimate.

Nectarines	18,480	A
Eggplant	18,000	A
Collards	15,900	B
Asparagus	14,460	A
Pears	11,940	A
Winter squash	11,340	B
Onions	8,100	B
Summer squash	8,040	B
Arugala / dandelions	4,900	A
Strawberries	4,876	B
Celery	3,888	B
Cherry tomatoes	3,600	A
Green beans	3,510	A
Hot peppers	3,000	A
Roma tomatoes	2,880	A
Turnip/ beet roots	2,880	A
Turnip / mustard greens	2,700	B
Mushrooms	2,376	A
Raspberries	1,764	A
Cantaloupe	1,440	A
Cherries	1,296	A
Green onions	1,248	A
Cauliflower	1,056	A
Radishes	432	A
Herbs	431	A
Spinach	260	A
Alfalfa sprouts	192	A
Garlic	145	A
Jerusalem artichoke	144	A
Total	297,158	N/A

Most often, retailers indicated that additional quantities of organic apples and peaches were desired. cursory examination of Table 4 indicates that three of four most frequently mentioned items were organic tree fruits (apples, peaches, and nectarines). Tree fruits require multiyear cash expenditures before revenue is received, are labor intensive, and have extensive management requirements so it may not be surprising that local retailers experienced difficulties in obtaining local organic fruit supplies. Among vegetables, retailers expressed a desire for quantities of locally grown organic garden peas, organic eggplant, organic collards, and organic asparagus. However, growers should recognize that retailer quantity estimates were based on personal experience and sales expectations rather than market analysis conducted by the firm. A few retailers indicated that some supply procurement problems existed (mostly for organic apples and peaches) and stressed that they sought only limited quantities of these items.

Timing of payment and sales terms for direct store delivery of produce varied by grocer but retailers stated most growers were satisfied with their payment policy. A majority

of retailers (17 of 27) either paid growers the same day or within one week of delivery. Seven stores indicated that it was their usual practice to pay growers every two weeks or once per month. Three respondents were unsure about when growers were paid. If growers experience payment problems, then it may be useful for them to include a statement similar to “Payment is due 10 days after date of shipment” on all invoices given to grocers.

Retailers were asked to identify the most important factors that they considered when: 1) they selected a supplier; and 2) evaluated quality characteristics in produce. Fourteen retailers stated that consistent product quality was the most important trait when they evaluated suppliers. Using a five-point semantic differential scale (a sliding numerical scale where the most important factor receives a value of 5.0, the second most important factor receives a value of 4.0, and so forth with the fifth most important factor receiving a score of 1.0), consistent product quality was regarded as the most important supplier attribute (mean value of 4.16). Ten retailers identified supplier dependability as the most important attribute desired from a supplier. Using the five-point rating system, supplier dependability received an average value of 3.75. Several retailers believed that a competitive or low price paid was the most important factor in the selection of a supplier but a majority of retailers stated that while competitive or low price paid was important (2.92), it was less important than either consistency or dependability. Timing of product availability (2.21) and product volume (1.67) were not cited by any retailers as the most important factor in selecting but stressed that under certain circumstances both factors could become more important.

When retailers were asked to identify the most important quality characteristics sought when they bought produce, findings were similar to the supplier selection criteria. Fifteen of twenty-seven retailers believed that consistent product quality was the most desirable quality characteristic (value of 4.36). Organic certification was the most important quality feature for nine of the retailers (value of 4.95) since they wanted independent assurance that items labeled as ‘organic’ were organically grown. Product availability (value of 3.04) and competitive price paid (value of 2.96) were cited by two retailers as the most important product quality features desired but while most retailers believed that availability and price were important considerations they were far less important than either product consistency or organic certification. Handling and payment issues (value of 1.26) were not considered important factors when assessing product quality features.

Organic Trends

Twenty-five of twenty-seven grocers stated that the price they paid to obtain an organically grown fruit or vegetable was usually higher than the price they paid for comparable quality conventionally grown item. Among the twenty-five retailers that paid higher prices for organic produce, five were unwilling or unable to specify a percentage price premium paid. Twenty grocers, however, indicated that they paid, on average, about 25 percent more for organically grown fruits and vegetables as compared with conventionally grown produce. Grocers noted, however, that the specific amount of the premium paid varied by commodity, time of year considerations,

and the supply source. Two retailers indicated that usually they paid the same price for organically grown and conventionally grown produce items (for comparable quality). None of the twenty-seven retailers indicated that they paid less for organically grown fruits and vegetables than conventionally grown produce. Most retailers' (22) believed that the demand for an organically grown fruit or vegetable was mostly independent of the demand for a conventionally grown item. Four retailers disagreed, however, stating that demand for an organic fruit or vegetable tended to mimic the demand for conventionally grown fruits and vegetables. Linkages between organic and conventional produce sales were explored further by asking retailers what their customers did if a specific organic fruit or vegetable was not available. One respondent was unsure about the usual customer reaction but 12 of 27 retailers believed that their customers left the store without purchasing the desired item. Nine retailers stated that their customers usually bought a substitute item that was organically grown. Finally, four retailers believed that their customers most often purchased the same item but the commodity bought was grown using conventional production practices. One of the four retailers noted, however, that some customers inquired about the availability of transitional produce and, if available, believed that customers would purchase a transitional item before buying the conventionally grown item. Thus, retailer responses to the out-of-stock question support the notion that customer demand for organic produce was independent of the demand for conventional produce.

Retailers were asked several questions concerning recent and projected sales for organic fruits and vegetables. Twenty-two of twenty-seven retailers (81 percent) indicated that sales of organic produce had increased between 1997 and 1999. Three retailers were unsure about the specific rate of organic produce sales increase but nineteen retailers believed that the increase ranged between 7 and 50 percent. On average, the nineteen retailers estimated that organic produce sales had increased 20.8 percent since 1996. Four retailers stated that the volume of organic produce sales was unchanged since 1996 and one retailer estimated that sales had declined 20 percent since 1996. Over the next two years, all twenty-seven retailers believed that their sales volume would increase. The retailers were about equally divided, however, about the rate of growth in organic produce sales, however, with 14 of 27 retailers of the opinion that the rate of growth would be substantial while 13 of 27 retailers believed that the rate of sales growth would be slight. Finally, retailers were asked to identify important factors that limited their sales of organic produce. Eleven of twenty-seven retailers (41 percent) believed that high price for organic produce was an important factor that limited current and future sales. On the five-point scale system, the high price reason was cited by the greatest number of retailers and received an average response value of 3.83.

In the fall of 1998, Department of Sociology and Anthropology faculty at North Carolina State University (Hoban and Clifford, 1999) conducted phone interviews with 897 randomly selected North Carolina citizens. Citizens were asked to agree or disagree with the statement "I am willing to pay more for foods that are certified as organic". Findings revealed that 51 percent of the citizens were willing to pay more for certified organic food while 41 percent of participants disagreed. Eight percent did not know or did not offer an opinion. Thus, a slight majority of surveyed citizens indicated

a willingness to pay a price premium for organic foods. Nevertheless, retailers remain concerned that higher prices limit organic food sales. Next, retailers believed that a greater level of awareness among consumers was needed before rapid sales expansion could occur. While health and nutrition benefits are often cited as reasons to increase organic food consumption, additional scientific evidence may be needed for broader appeal to general consumers. Thus, retailers were concerned that many consumers were unaware of potential benefits associated with organic food consumption. Eight retailers identified this reason as the most important limit on sales and it received an average response value of 3.44. Third, retailers believed that it was increasingly more difficult to obtain regular, consistent supplies of organic produce and this factor limited sales and could limit future sales expansion. While only two retailers believed that it was the most important limiting factor, eight retailers believed it was the second most important limiting factor. As a result, its average rating among retailers was third-highest at 2.92. Insufficient demand (2.68) and poor quality (2.22) of organic produce were cited by several retailers as important limiting factors but most retailers believed that they were relatively unimportant sales limit factors.

How important is certification to retailers?

As noted earlier, the Organic Food Protection Act of 1990 (OFPA) initiated the process by which federal standards and guidelines were developed concerning the production and labeling of products identified as organic. Approximately 14 states have established state certification programs that allow and prohibit practices in order to use the organic label. In North Carolina, organic growers must develop and follow a plan that is approved by an accredited certifying agency. Most frequently, local growers use the process established by CFSA to obtain third party organic certification. Certification of organic products offers benefits to producers, retailers, and consumers because it offers some additional measure of protection against fraudulent claims and mislabeled products. As the organic market expands, direct interaction among producer, retailer, and consumer will be more limited and the need for a clearly understood and credible standard becomes more critical. Retail respondents indicated that they would like to see a mandated organic certification program implemented as soon as possible. Twenty-three of twenty-seven retailers stated that the organic certification was an important consideration when dealing with local fruit and vegetable growers. However, since national organic certification guidelines did not exist, a majority of retailers (14 of 27) did not require 'organic certification' documentation before they purchased organic fruits and vegetables. Four of five retailers indicated that they would purchase transitional produce if items available on a more regular basis. In part, their willingness to sell transitional produce was linked to the lower acquisition cost and lower retail sales price for transitional produce when compared with organically grown produce. The retail price for transitional produce was usually the same as the conventional price and less than the organic price for comparable quality produce items.

Promotional Activities

Twenty-one retailers used advertising to increase organic produce sales. Primarily, retailers utilized their own newsletters, store flyers, and local newspaper ads to feature in-

season fruits and vegetables. Several retailers used in-store pictures and write-ups about local growers who provide organic fruits and vegetables. One retailer gives tee shirts to regular customers. Six retailers indicated that they did not advertise produce. Three retailers indicated that television ads were purchased occasionally and seven retailers indicated that local radio station ads had been purchased on an irregular basis. A clear majority of retailers that had used advertisements to increase store sales (15 of 21) indicated that they expected their advertising budget to increase over the next two years. The remaining retailers indicated advertising expenditures likely would be unchanged over the next two years.

Retailer Perceptions about Shopper Purchase Habits

Retailers believed that consumers purchased organically grown fruits and vegetables for a diverse set of reasons. Retailers were asked to identify reasons as to why they thought their customers purchased organic produce. All twenty-seven retailers mentioned improved health and nutrition considerations. About three-fourths of the retailers cited improved flavor and environmental ethic considerations as a purchase influence. About one-half believed that shoppers purchased organic foods because they wanted to support local growers, the local economy, and wanted to reduce wasteful resource use. Finally, one-third of the retailers offered the opinion that the superior freshness, size and appearance of organically grown fruits and vegetables persuaded shoppers to buy organic items on a regular basis. Most retailers (15 of 27) indicated that regular customers shopped two-to-four times per week for produce while the remaining retailers believed their typical shopper visited once per week. Twenty-two retailers indicated that the typical purchase amount per visit ranged between \$2.00 and \$27.50. Among respondents who offered an estimate, the average purchase amount per visit for regular customers was about \$12.50.

The importance of maintaining a regular supply of organic fruits and vegetables for sale was reflected in responses to what customers did if an organic item was not available. Twelve of twenty-six retailers (46%) who offered a view stated that most shoppers simply left the store without purchasing anything. Nine retailers stated that customers would examine alternative products and then purchase a substitute item that was organically grown. Only four retailers indicated that regular customers would purchase the same item grown by conventional methods. Thus, many retailers were very concerned if their organic items were out of stock. Sixteen retailers believed that the 'certified organic' label was the main criteria used by shoppers to purchase a produce item. Nearly as many retailers also indicated that it was very important for shoppers to know if the item was obtained from a local or North Carolina grower. Only two retailers believed that certification and identification of the product as North Carolina grown were unimportant purchase factors. Seven other retailers believed that regular shoppers wanted to know if an item was 'certified organic' but purchased an item because of other factors. While a majority of retailers thought organic certification was important, about three-fourths of the retailers also believed that shoppers were unaware of the exact meaning of the term 'certified organic'. In addition, a majority of retailers also believed that most customers were unsure what 'transitional' means. Most retailers would like to see standardization of the definition of 'transitional' and seven respondents thought that, with additional

knowledge about the meaning of transitional, some customers would purchase transitional produce.

Twenty of twenty-seven retailers also stated that they carried or intended to carry items with an 'eco-label' designation. Ecolabeling was defined as an alternative product labeling method that featured a certain sustainable production practice such as IPM or low-input. Eco-labels can give farmers, retailers, and consumers more options and clearer choices for products bought. Ecolabeling has achieved widespread acceptance and use in European countries, particularly Germany and The Netherlands. In the United States, private and public ecolabeling initiatives were established in Virginia and New York while other states have explored ways to establish criteria for the voluntary use of a green or eco-label. In 1999, the North Carolina Department of Agriculture, North Carolina State University, and several private organizations initiated informal discussions about potential industry benefits and problems associated with development of a North Carolina eco-label. Additional discussions are planned in the fall of 1999.

Retailers also offered a variety of suggestions to local growers on ways to improve sales prospects. Frequently, the advice was maintain open and frank communication with buyers and customers, harvest and pack high quality products, price product competitively, and develop a marketing plan before seed is planted. Several retailers stated that they wanted growers to build personal relationships with them so growers could become better informed about customer wants and preferences. Two retailers also suggested that growers examine season extension methods so that they could provide product over a longer period of time. Compilation and maintenance of a list of items grown, volume available, usual harvest window, and informational pamphlets for consumers about organic practices would assist both retailers and area growers.

Retailers offered advice and suggestions on how to increase local organic purchases. Retailers encouraged organic growers to become proactive in contacting stores, especially during slower sales periods such as during the winter months (December-February). Retailers requested CFSA and county extension agent assistance to increase consumer awareness about organic foods through organization of in-store organic workshops. Several retailers requested additional written information about organic items such as a list of local organic growers, how much they produce, when products are for sale, and grower profiles that were suitable for display in stores. Retailers also encouraged growers to learn more about the retail selling so that they assist the store in selling more organic product.

Wholesale Survey

While retailers are an important link between organic growers and consumers, wholesale firms provide an important marketing link between organic growers and retailers. Typically, food sold in grocery stores or prepared in foodservice establishments (restaurant, hospital, school, etc.) is obtained either from the grower directly or from a wholesaler. Wholesalers can supply retailers or foodservice operators with a full product line as meat, seafood, bakery, or dairy products or they can focus on product categories such as fresh produce, deli meat, or frozen foods. In this survey, we sought to identify

and contact wholesale firms that provided North Carolina natural food store retailers with organic and transitional produce. Wholesalers buy large quantities of products from regional, national, and international suppliers and oftentimes repackage items into smaller units for resale. Chain stores integrate retail and wholesale activities through establishment of a central receiving warehouse where product is inspected, repackaged, and redistributed to stores. Integrated operations can reduce handling costs, save time, avoid temporary shortages and surpluses, reduce in-store storage costs, and extend shelf life for perishable items. Independent retailers often use multiple methods to obtain produce. First, they can purchase items directly from local producers. Second, they can use the services of an independent wholesaler to obtain items unavailable from local sources. Third, they can become a member of an affiliated group. Affiliated groups are independent retailers and food service operators who participate in a cooperative central receiving and distribution operation. Affiliated groups offer the cost advantages of a centralized receiving and distribution operation without bearing the full cost of the warehouse operation. Affiliated and unaffiliated retailers often use brokers to locate product, arrange transportation, schedule delivery, and negotiate price.

Wholesaler Profile

Preliminary research identified five natural food wholesaler or dealer operations that supplied most North Carolina retailers with organic produce. For survey reporting purposes, the term 'wholesaler' is used as a collective term to categorize the assembly and redistribution of natural food products. In particular, surveyed wholesaler firms included a cooperative that collected and resold organic produce, the central warehouse operation of a multi-store retailer, and companies that bought organic product with the intent to resell it to others. Preliminary conversations with targeted wholesalers confirmed that most of their sales revenue was obtained from the resale of natural, organic, and/or transitional products. The wholesaler survey form is very similar in content to the retailer survey form listed in Appendix A. Three of five wholesale firm's readily identified employees who would serve as the survey contact. One wholesale firm agreed initially to participate in the survey and also provided responses and opinions to the qualitative or opinion portion of the survey. However, during the quantitative collection phase of the study, the company experienced organizational and financial difficulties. Legal considerations precluded this wholesaler from additional cooperation in the study so usable quantitative data were not obtained from this company. Finally, the fifth wholesaler declined to provide quantitative data and declined to offer opinions about the organic industry. Selected quantity and price data were obtained for the wholesaler who declined to participate, however, because retail customers of the wholesaler provided data concerning the amount of product purchased from the wholesaler and the price paid. Thus, retailer records provided an indirect measure of the amount of product purchased from this wholesaler as well as the wholesale price for targeted organic crops. In summary, then survey opinions and views were obtained from four wholesale firms while quantity and price data were collected from three cooperating wholesalers plus the retail customers of the wholesaler who declined to cooperate in the study.

One wholesale firm started operations in the early 1980s while three firms opened in the early 1990s. All the respondent wholesalers did not handle natural or non-conventional

beef but one firm did buy and resell non-conventional poultry. This firm indicated that annual non-conventional poultry sales were about \$500,000 in 1998. Two of the four wholesalers resold non-conventional eggs and the combined egg sales approached \$780,000 in 1998. Three of four wholesalers bought and resold non-conventional dairy products (cheese, milk, and butter) and had aggregate wholesale sales in excess of \$3.4 million during 1998. Collectively, the wholesalers indicated that sales of fruits and vegetables were about \$3.3 million during a typical summer month in 1998. Approximately \$2.44 million (74%) of total sales was derived from the resale of fresh organic produce while the remaining \$860,000 (26%) in monthly sales revenue was generated from the resale of conventionally grown fruits and vegetables.

Two of four respondents expressed a strong preference to buy organic produce from North Carolina growers. One other wholesaler, however, expressed the view that price and supply consistency factors were more important considerations than the place of production. Two wholesalers who bought locally grown organic produce indicated that product freshness and 'it was the right thing to do' were important reasons for local purchases. Wholesalers indicated a willingness to utilize more local produce if the quantity available was more reliable and local growers improved postharvest handling practices, particularly in terms of pack quality, grade uniformity, and frequency of delivery to the wholesaler.

Wholesaler clients include traditional grocery stores, chain stores, natural food retailers, foodservice operators, buying clubs, retail cooperatives, and other wholesalers. All wholesalers indicated that a majority of sales were to retail grocery stores but the mix of clients varied considerably. One wholesaler estimated that sales to retail customers accounted for about one-half of total sales while sales to foodservice institutions comprised about 30 percent of total sales. On average, the wholesalers who participated in the survey indicated that 75 percent of sales were made to retail grocery stores and the remaining sales were split equally among foodservice operators, buying clubs, and member cooperatives. Sales to other wholesalers were less than 1 percent of revenue and were relatively unimportant to the survey participants.

Wholesalers distributed produce to retailers located in three broad regions in North Carolina: 1) western North Carolina; 2) central North Carolina; and 3) eastern North Carolina. For study purposes, wholesale activities focused in western North Carolina were labeled as 'Mountain' data and the Mountains were defined as the area west of Interstate 77. Eastern North Carolina was identified as the 'Coastal' region with the region defined as the area east of the city of Greensboro. Finally, the study identified the central portion of North Carolina as the 'Piedmont' and included the area east of Interstate 77 and west of the city of Greensboro. Thus, Charlotte was included in the Piedmont region while Raleigh, Durham, and Chapel Hill were included in the coastal region.

Wholesaler Sources for Produce

Surveyed wholesalers obtained the targeted sixteen organic fresh fruits and vegetables both from North Carolina organic growers and from out-of-state organic growers.

Wholesaler purchase records indicated that between October 1997 and December 1998, wholesalers paid North Carolina organic growers about \$127,500 for locally bought organic fruits and vegetables. Recall two wholesalers indicated that it was not their usual business practice to buy North Carolina grown organic vegetables and fruit. Both wholesalers indicated that most organic produce was obtained from California organic sources. One of the two wholesalers stated that around 85 percent of their organic produce was grown in California and the remainder was obtained from seasonally important U.S. locations. Both wholesalers indicated that they also bought organic produce from growers in several western states as well as New England. Two other surveyed wholesalers indicated that they frequently bought North Carolina grown organic produce but the mix and amounts varied by crop and season. The typical situation was that organic produce was bought from local growers when available but quantities were supplemented by purchases from out-of-state suppliers. Most often, wholesalers bought potatoes, kale/chard, zucchini, carrots, cabbage, tomatoes, salad packs, cantaloupe, and watermelons from out-of-state suppliers. Wholesalers tended to buy leaf lettuce, sweetpotatoes, peppers, and watermelon from local organic growers. In addition to North Carolina grown produce, primary sources for product were organic growers and suppliers located in California and Florida. For selected commodities and times, wholesalers purchased organic fruits and vegetables from suppliers located in Colorado, New York, Maine, Tennessee, Washington, Wisconsin, Idaho, Mexico, and eastern Canada. Wholesalers indicated that purchased organic produce from a wide number of growers.

On average, the wholesalers indicated that they bought produce directly from 34 different organic growers but the number of growers varied considerably by wholesaler. One wholesaler bought items from fewer than 10 organic growers while another wholesaler bought from as many as 70 organic growers. Wholesalers also had different views on the minimum amount of product desired from a grower as well as the minimum time that they wanted to source product from a grower. One wholesaler stated that their minimum purchase amount was one pallet while another wholesaler stated that they would buy as little as one case from an organic grower. Three of four wholesalers indicated that they would purchase items from a grower for a period as short as one week while the other wholesaler indicated that they preferred a minimum supply period of four weeks.

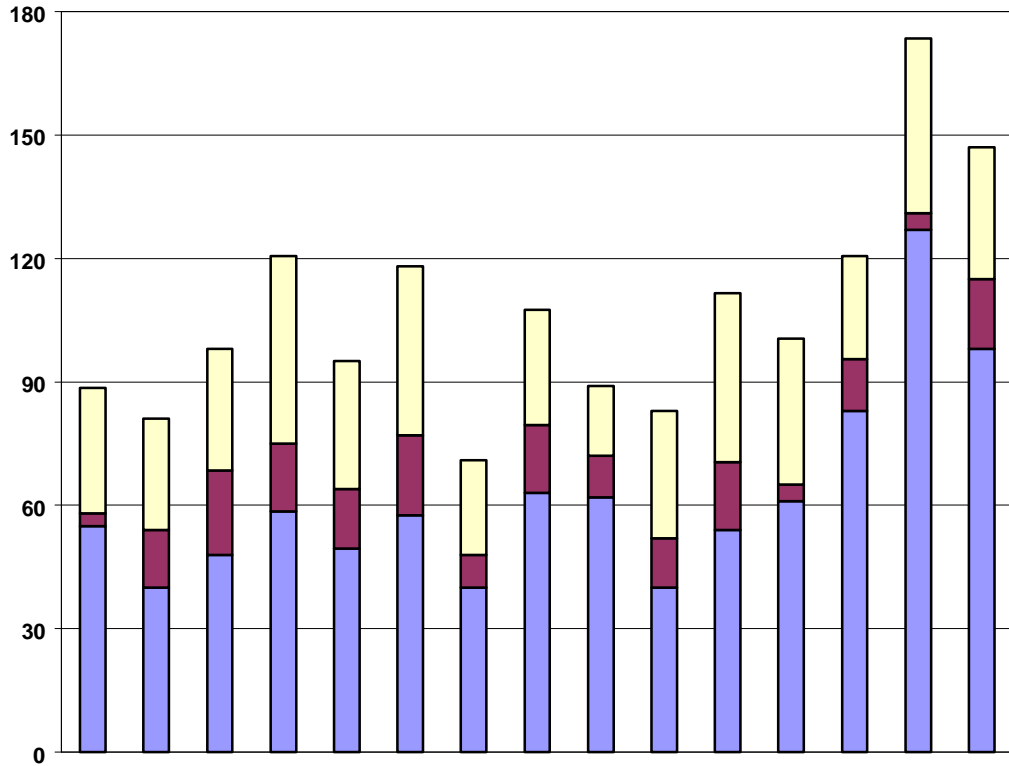
Quantitative Data

Wholesalers were also asked to provide specific purchase amount and price data for organic fruits and vegetables. As an initial consideration, wholesalers were asked to focus on organic produce sales to natural food retailers located in North Carolina. For this sector of sales, wholesalers were asked to provide the amount of produce sold to the North Carolina natural store retailers, the sales unit or shipping container, the average price paid by the wholesaler to North Carolina organic growers (in this study 'wholesale' price refers to the price paid to growers and not the price charged by wholesalers to customers), and the shipment origin (state) for loads. Quantity and price data provided by wholesalers are summarized in a set of 32 charts.

The first 16 charts summarize wholesaler responses to the amount of produce shipped to natural food store customers. The number of quantity charts correspond with the targeted

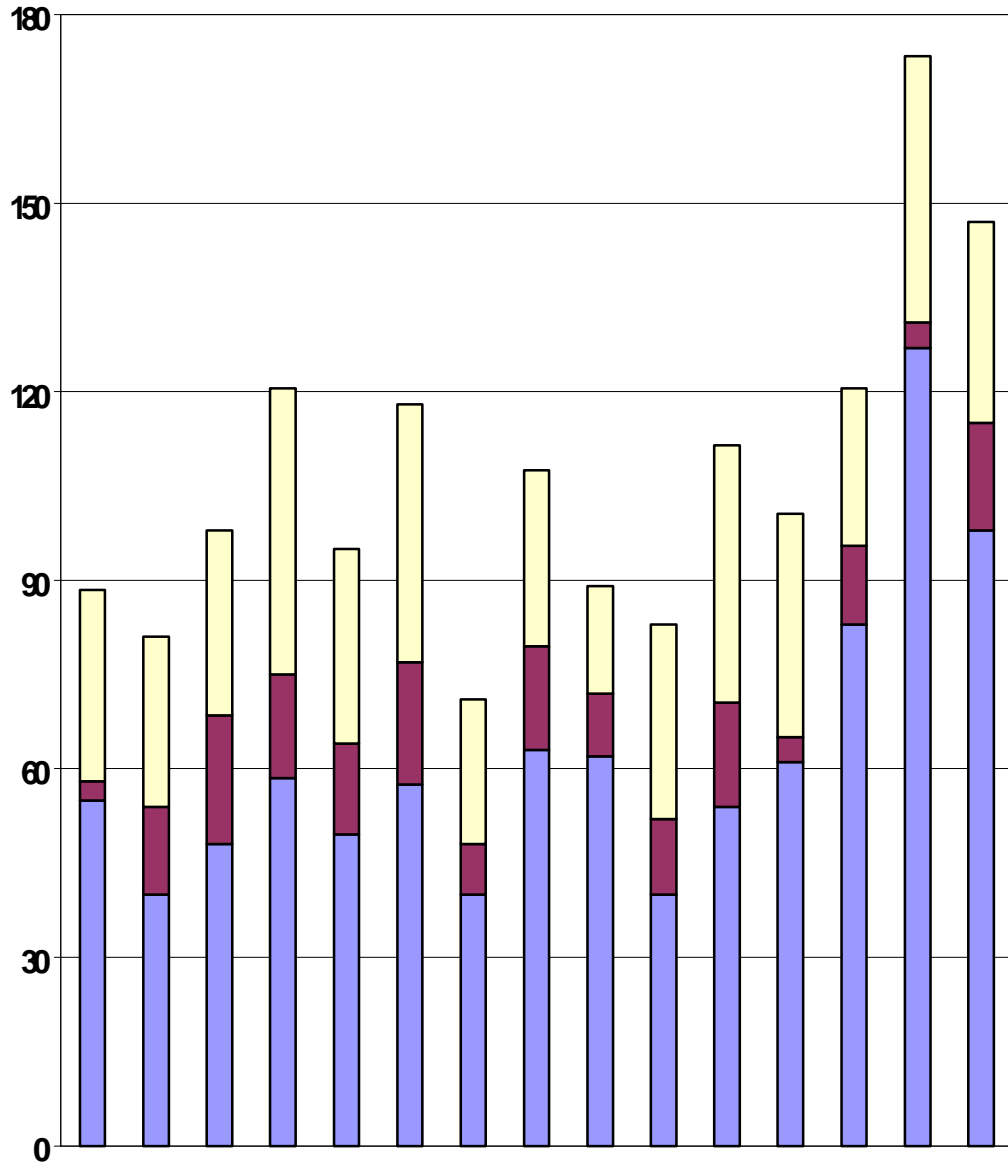
sixteen fruit and vegetable commodities. Weekly quantity data was obtained from wholesalers and then aggregated to generate monthly quantity data for the October 1997 through December 1998 period. Shipments varied somewhat by region so quantity data were categorized by region within North Carolina. The Mountains, the Piedmont, and the Coastal areas of North Carolina were identified as three broad geographic areas within North Carolina. Quantity data was assigned to a region on the basis of where the retail store was located. The next 16 charts summarize the average price paid to growers on a per unit basis by month over the 15-month period. For the purposes of this study, the average price paid to organic growers was designated as the “wholesale” price labeled on the charts. The last column in the price charts reflects the average price paid to organic growers over the 15-month period. Thus, chart data reflected the quantity shipped by wholesalers to the natural food store retailers in North Carolina and the average price paid to growers by wholesalers to purchase the item. Months with zero entries indicated that wholesalers did not ship product North Carolina natural food store retailers that month. For reader convenience, information from the quantity and price charts were again summarized in tabular form in Table 5. The presentation format in each chart is similar. The vertical axis on the quantity charts displays the number of units purchased by retailers while the horizontal axis displays the month. The chart title identifies the commodity and indicates the reporting unit used. In selected cases, the reporting unit is nonstandard because of the variety of packages used by wholesalers so readers are urged to note carefully the reporting unit for each commodity.

Cabbage, 45 lb. crate



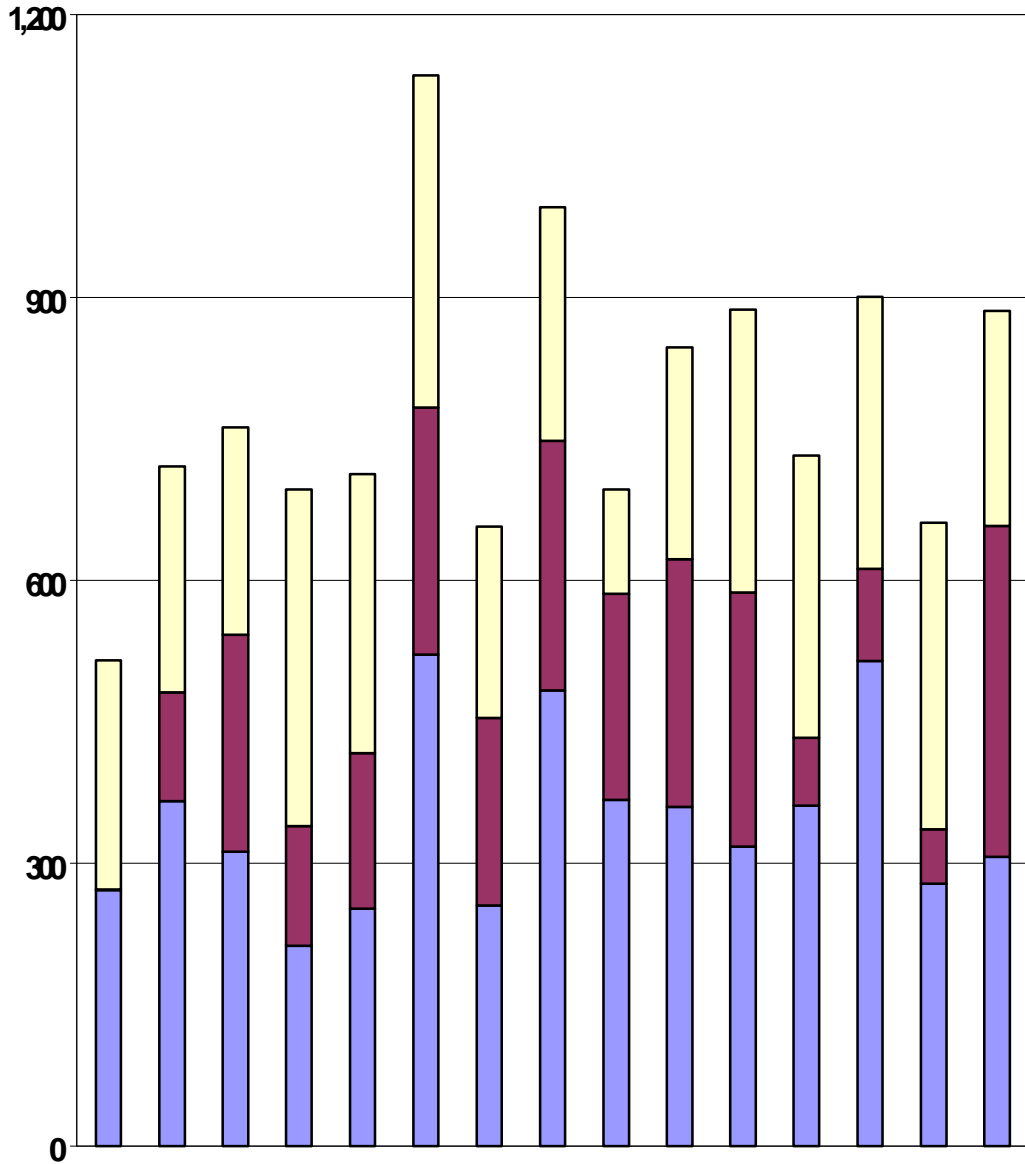
	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
Mountains	31	27	30	46	31	41	23	17	31	41	36	25	42	32
Piedmont	3	14	21	17	15	20	8	10	12	17	4	13	4	17
Coast	55	40	48	59	50	58	40	62	40	54	61	83	127	98

Cabbage, 45 lb. crate



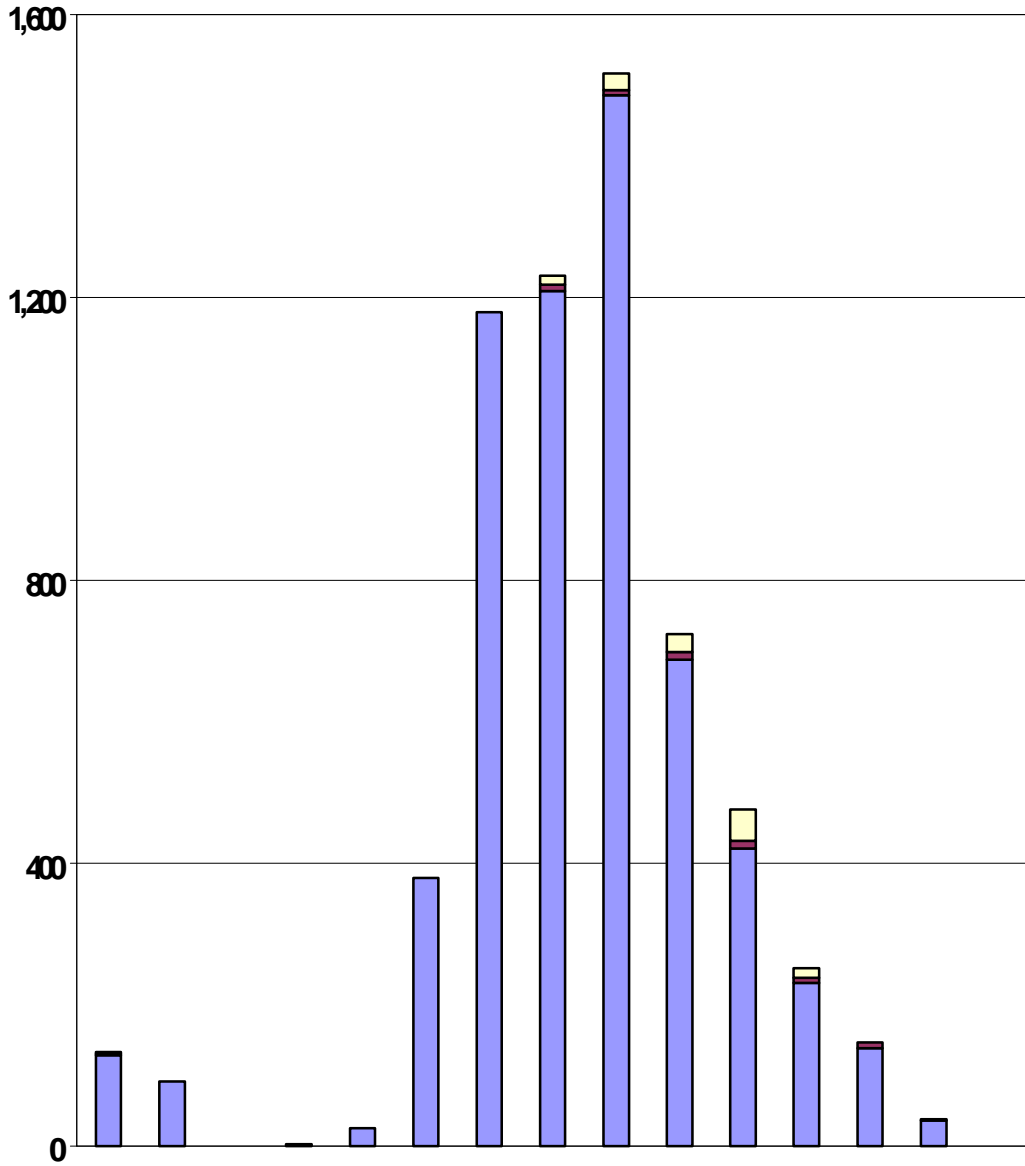
	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
□ Moutains	31	27	30	46	31	41	23	17	31	41	36	25	42	32
■ Flecht	3	14	21	17	15	20	8	10	12	17	4	13	4	17
■ Coast	55	40	48	59	50	58	40	62	40	54	61	83	127	98

Carrots, 25 lb. master pack



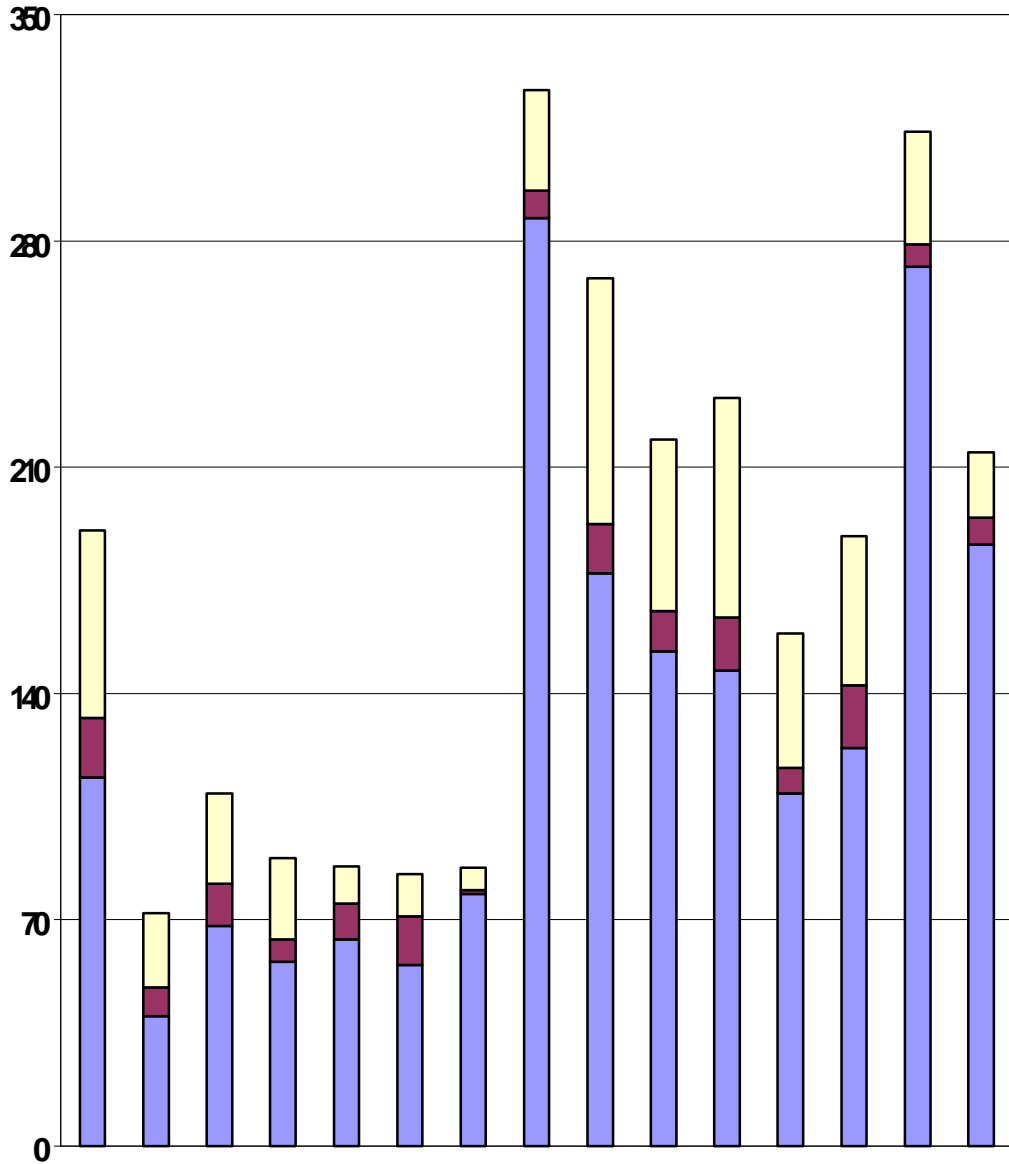
	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
Mountains	244	240	220	357	296	352	203	110	225	300	300	289	325	228
Piedmont	1	115	230	127	164	262	199	219	263	270	72	98	58	351
Coast	271	366	312	212	252	521	255	367	359	317	361	514	278	307

Sweet Corn, 42 lb. crate



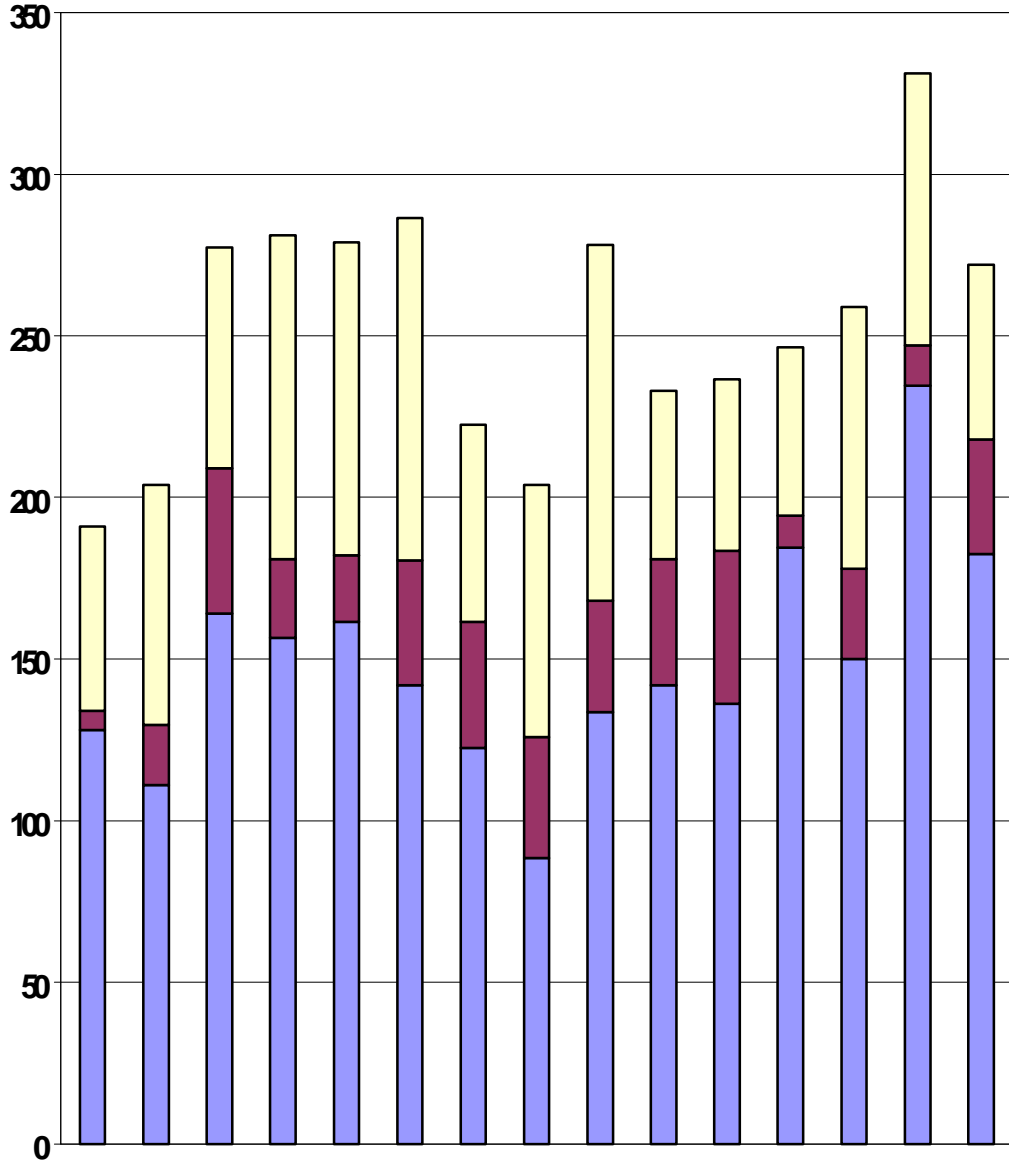
	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
Mountains	3							24	26	45	13			
Piedmont	2							7	10	11	7	8	1	
Coast	128	91		2	25	379	1179	1486	688	420	231	138	36	

Quumber, 20 lb. carton



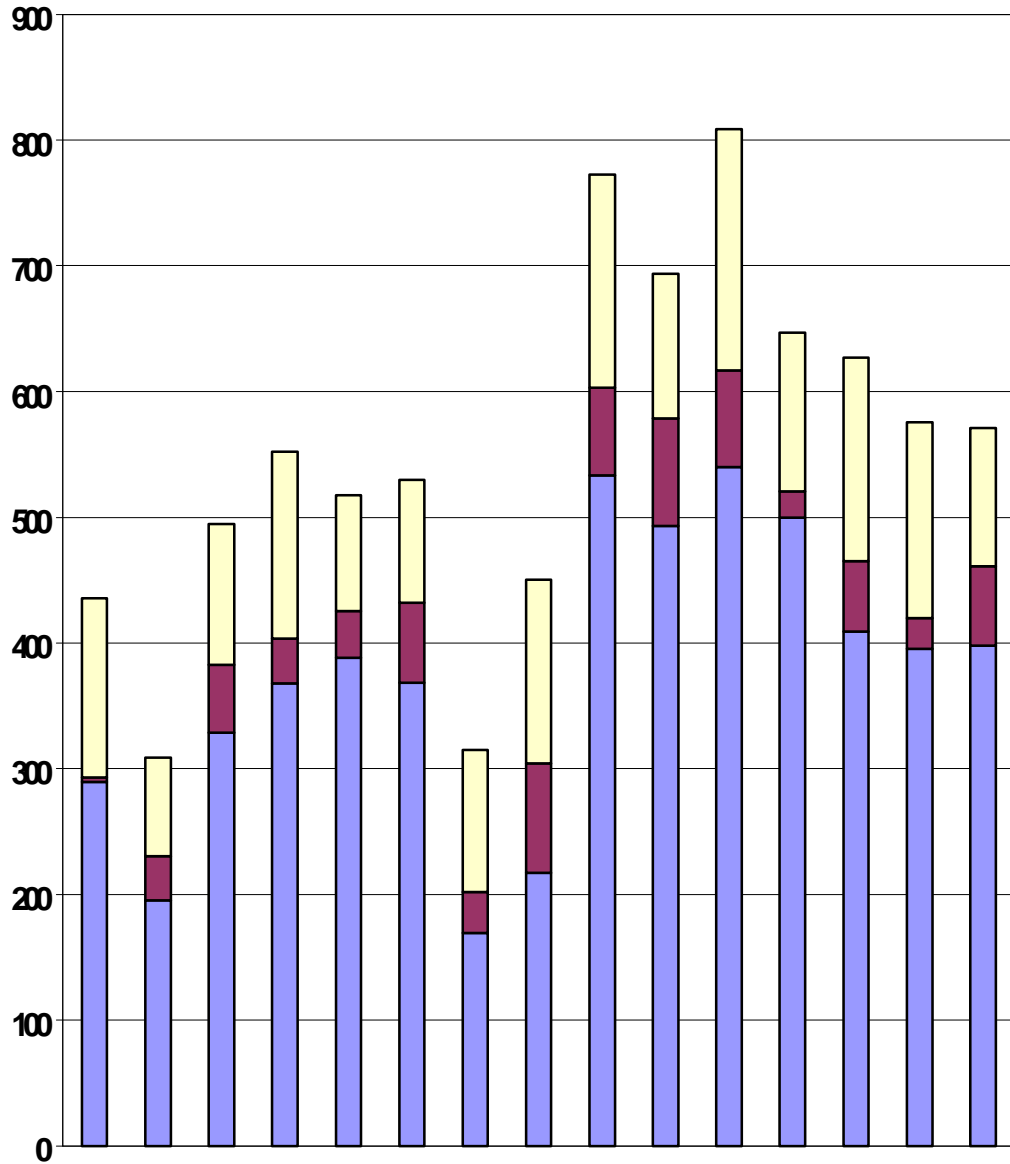
	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
□ Murtains	58	23	28	25	12	13	7	76	53	68	42	46	35	20
■ Redrot	19	9	13	7	11	15	1	16	13	17	8	20	7	9
■ Coast	114	40	68	57	64	56	78	177	153	147	109	123	272	186

Kale/Swiss Chard, 25 lb. box, 24 count



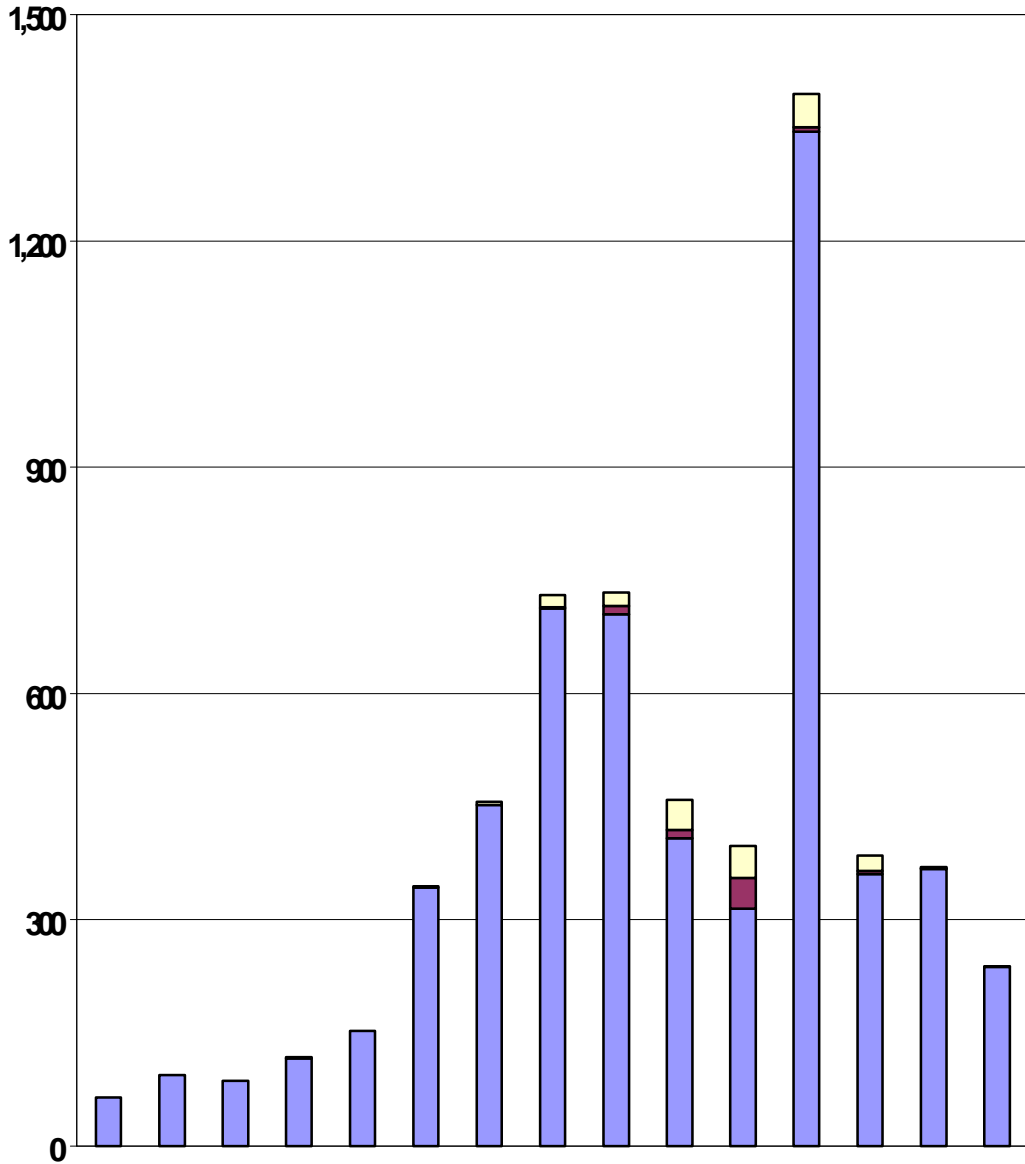
	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
□ Murrains	57	75	69	100	97	106	61	110	52	53	52	81	84	54
■ Redrot	6	19	45	25	21	39	39	35	39	48	10	28	13	36
■ Coast	128	111	164	157	162	142	123	134	142	136	185	150	235	183

Leaf lettuce, 25 lb. carton, 24 count



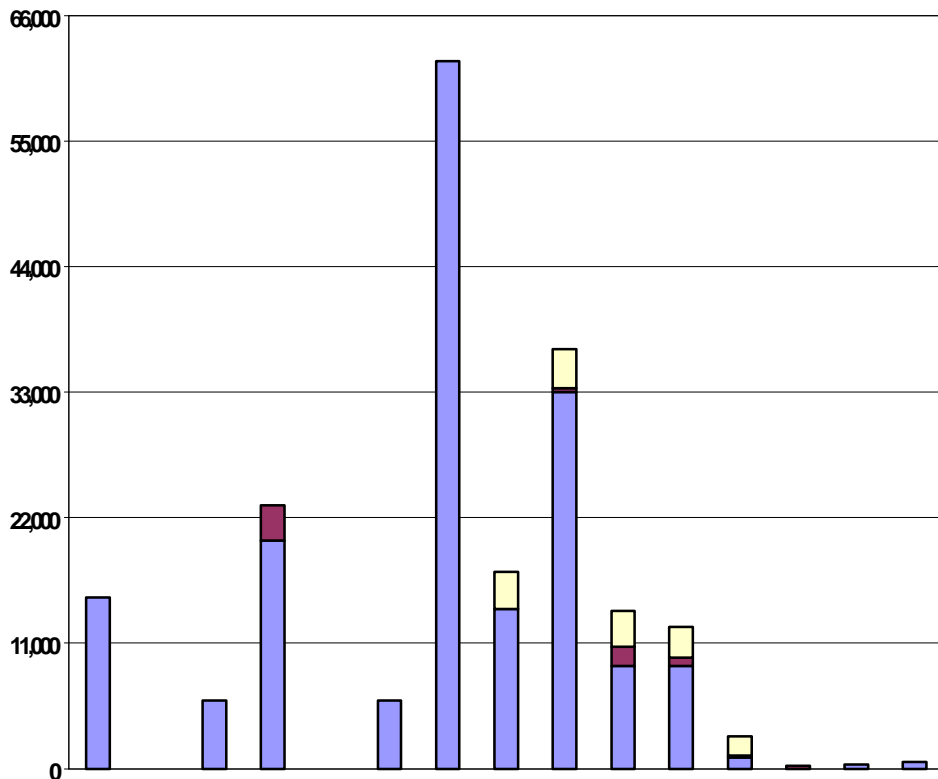
	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
□ Mountains	143	79	112	149	92	98	113	170	115	192	127	162	156	110
■ Piedmont	4	36	54	36	37	64	33	70	86	77	21	56	25	63
■ Coast	290	195	329	368	389	369	169	534	493	540	500	409	386	398

Cantaloupes, 35 lb. carton



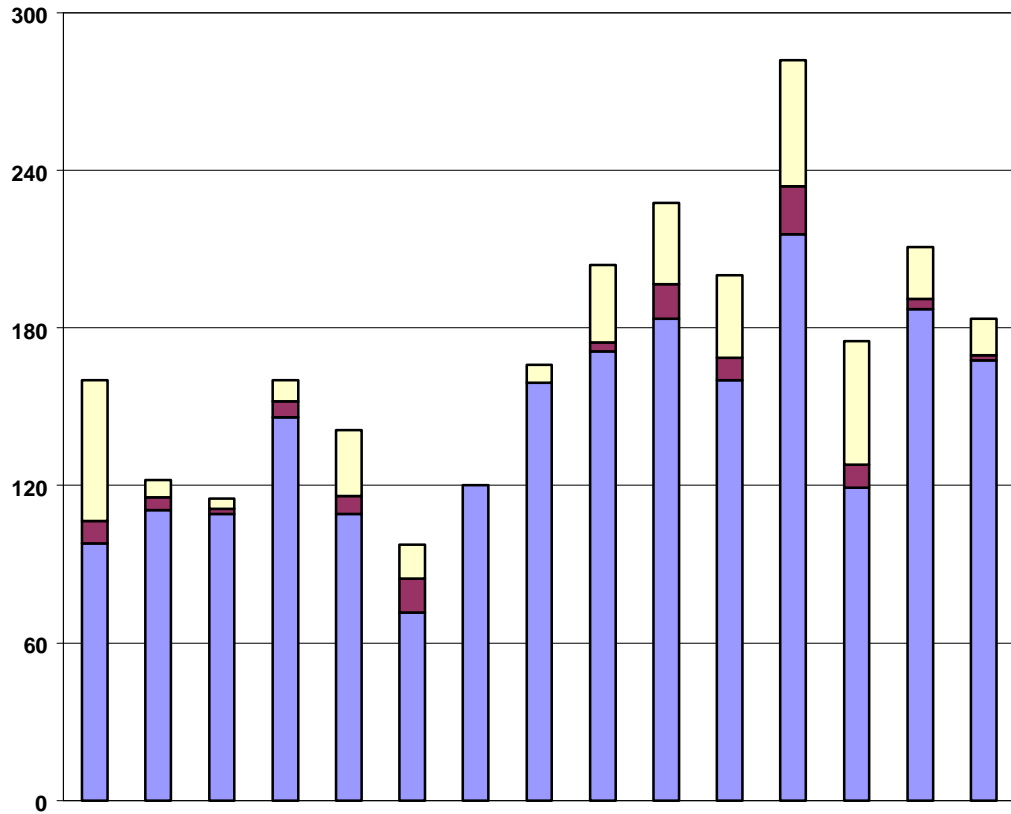
	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
Mountains						2	4	18	39	43	44	20	2	
Piedmont				1				11	12	41	6	5	1	1
Coast	64	94	86	116	152	342	452	705	408	314	1345	360	367	237

Wiermdon, Ibs.



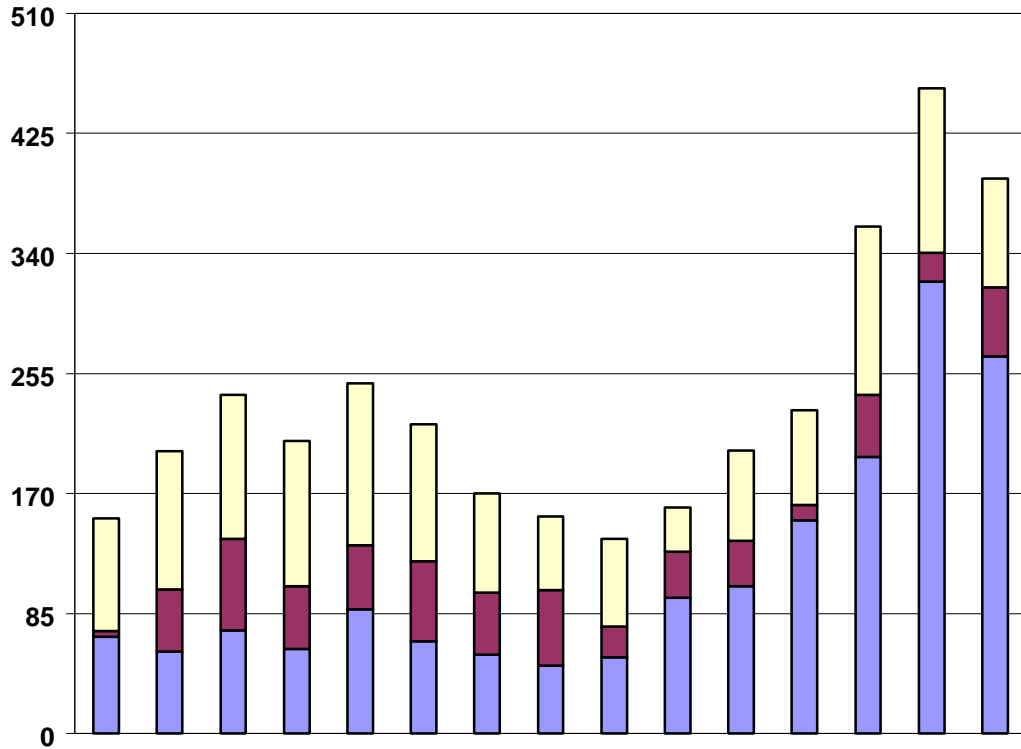
	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
□ Murtains								3274	3435	3150	2675	1654			
■ Flechront				3100					357	1674	750	175	278		
■ Coast	15000		6000	20000		6000	62000	14000	33000	9000	9000	1000		400	600

Bell peppers, 25 lb. carton



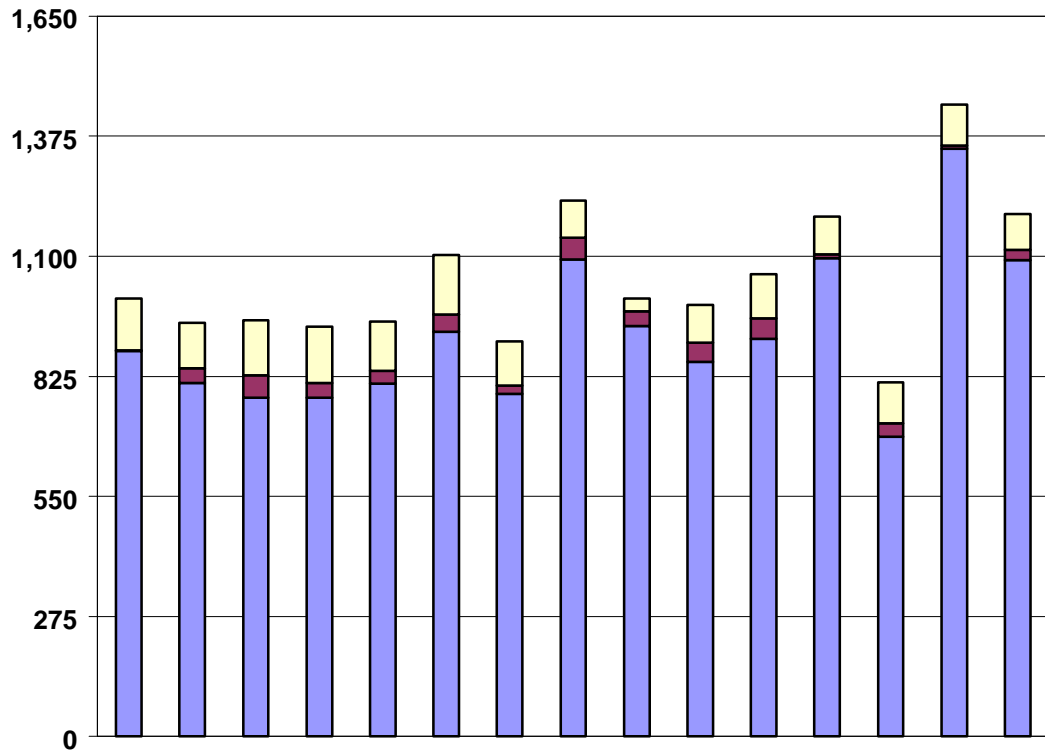
	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
□ Mountains	54	7	4	8	25	13		30	31	32	48	47	20	14
■ Piedmont	9	5	2	6	7	13		4	13	9	19	9	4	2
■ Coast	98	111	109	146	109	72	120	171	184	160	216	119	187	168

Potatoes, 50 lb. box



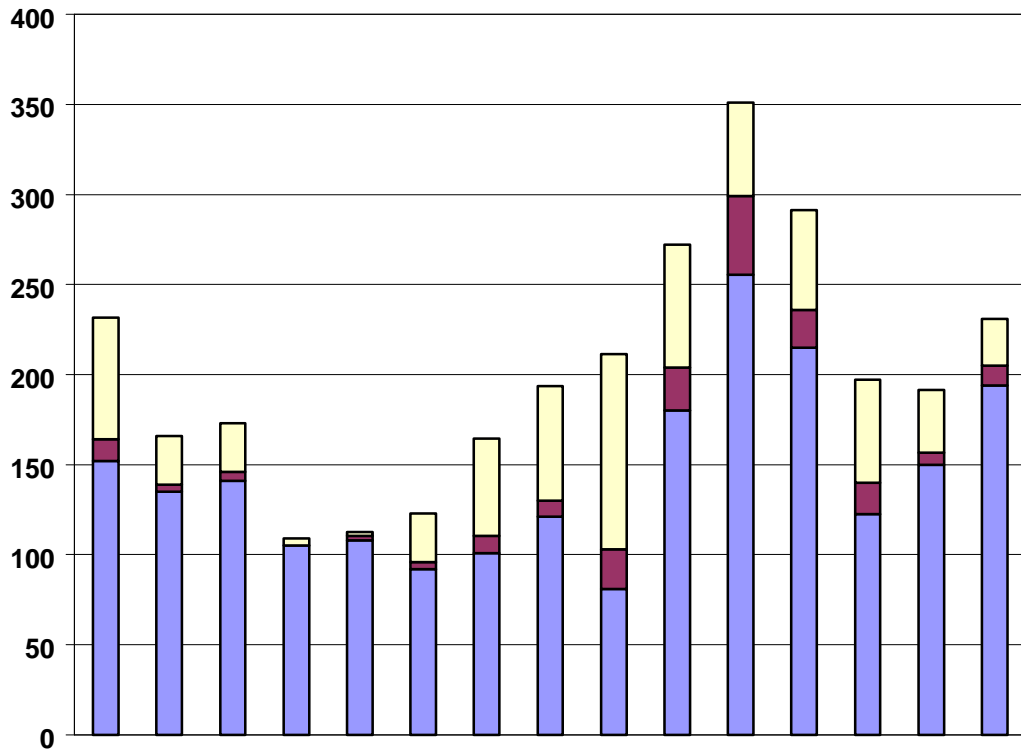
	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
Mountains	80	98	102	103	115	97	70	62	31	64	67	119	116	77
Piedmont	4	44	65	45	46	57	44	22	33	32	11	44	21	49
Coast	69	58	73	60	88	66	56	54	96	105	151	196	320	267

Salad mix, 3 lb. (24 count)



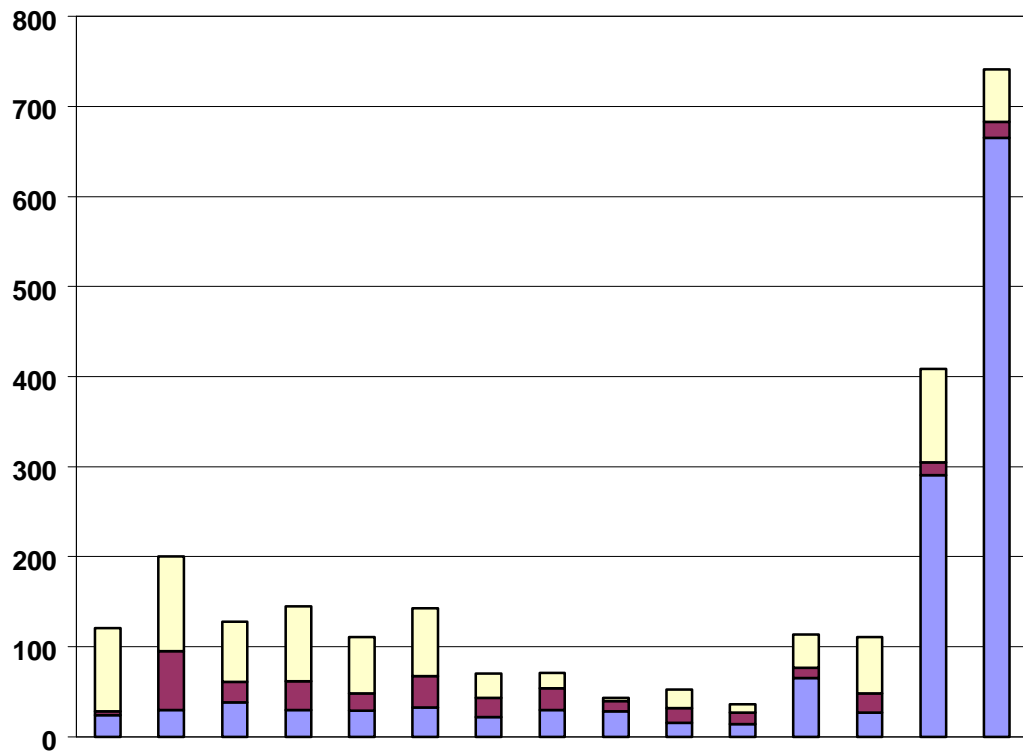
	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
□ Mountains	118	105	126	130	113	136	101	29	87	101	87	94	94	81
■ Piedmont	2	34	51	33	29	40	20	34	44	47	8	31	7	24
■ Coast	883	809	776	776	808	927	784	940	858	911	1096	686	1346	1091

Zucchini, 20 lb. carton



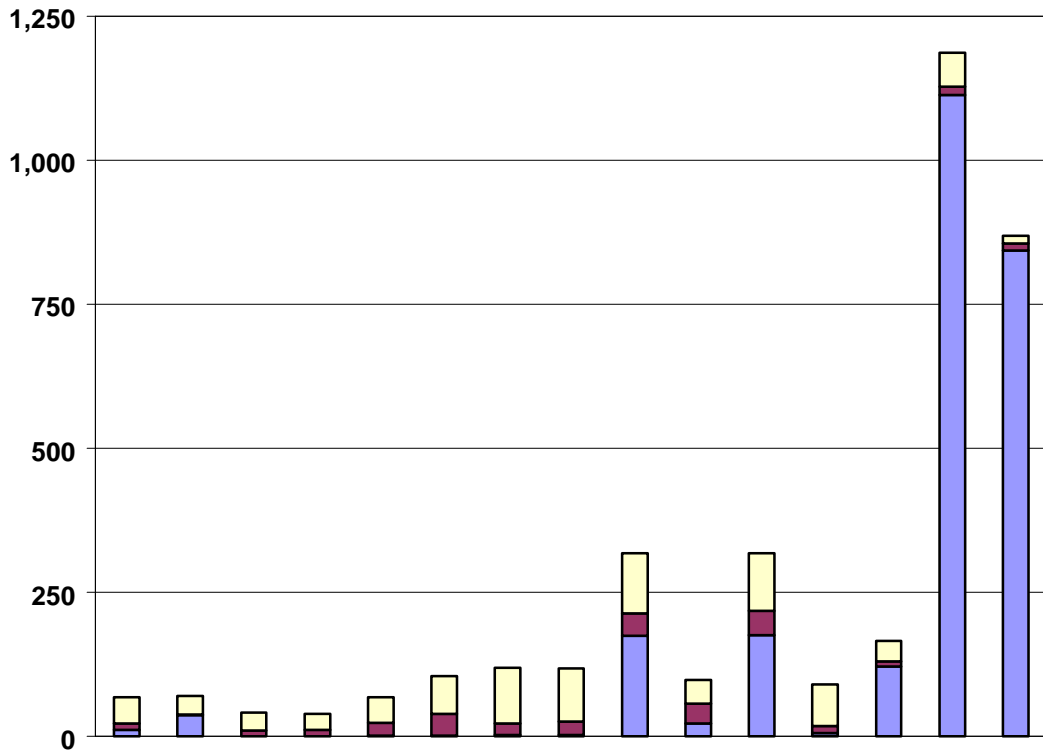
	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
□ Mountains	68	27	27	4	2	27	54	109	68	52	56	57	35	26
■ Piedmont	12	4	5		3	4	10	22	24	44	21	18	7	11
■ Coast	152	135	141	105	108	92	101	81	180	256	215	123	150	194

Sweetpotato, 40 lb. carton



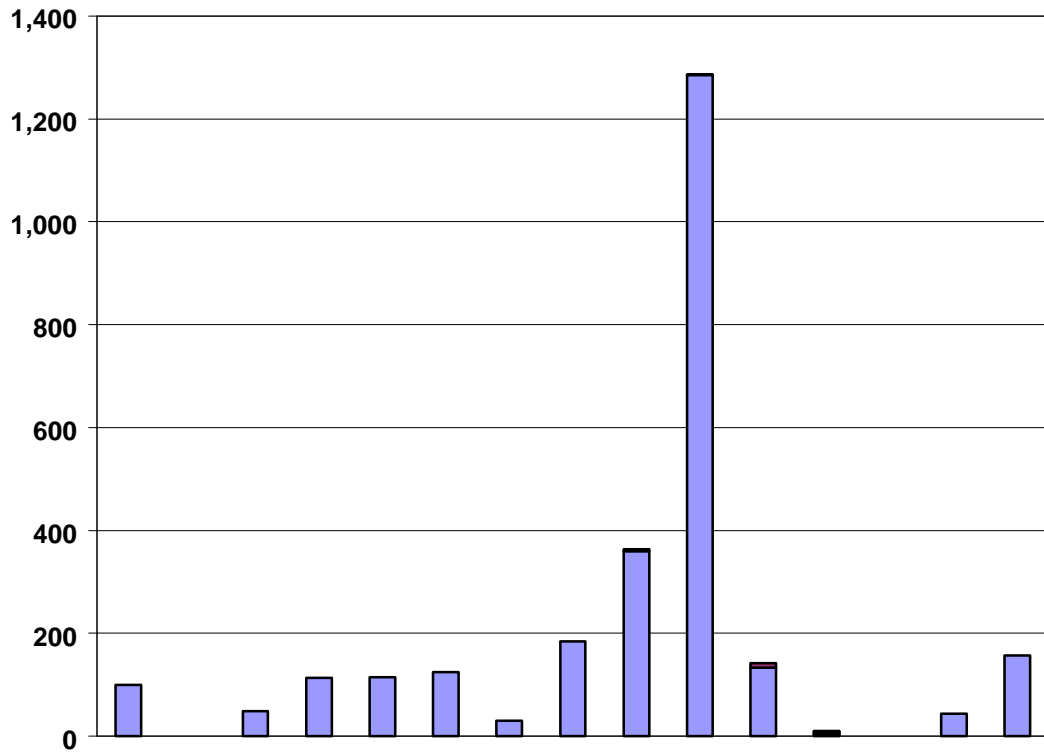
	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
Mountains	93	105	67	83	62	75	27	4	21	9	37	63	104	58
Piedmont	4	65	23	32	20	35	21	12	16	13	11	21	14	18
Coast	24	30	38	30	29	33	22	28	16	14	66	27	291	665

Tomatoes, vine-ripe, 20 lb. carton



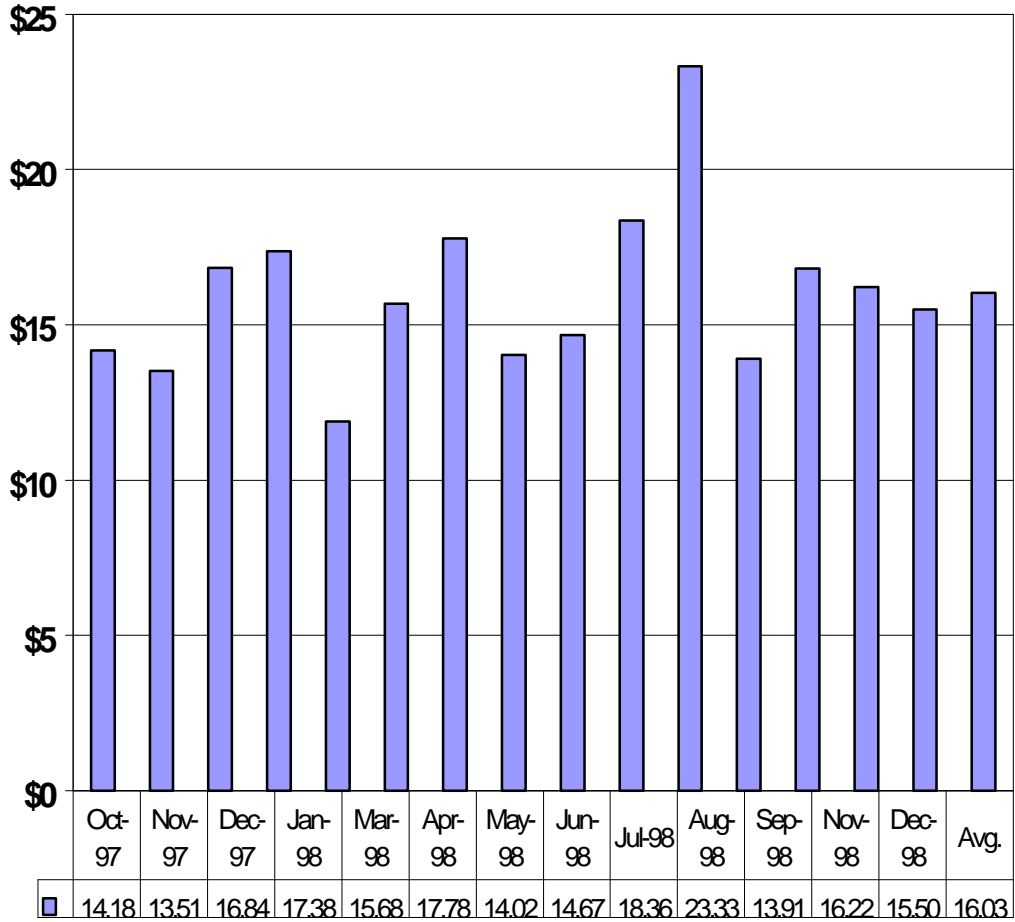
	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
Mountains	46	32	31	28	44	66	97	104	41	99	73	36	58	14
Piedmont	11	2	10	11	23	38	19	39	34	43	12	9	15	12
Coast	12	37			1	1	3	175	23	176	6	121	1113	843

Blueberries, 12 pint flat, 12 lbs.

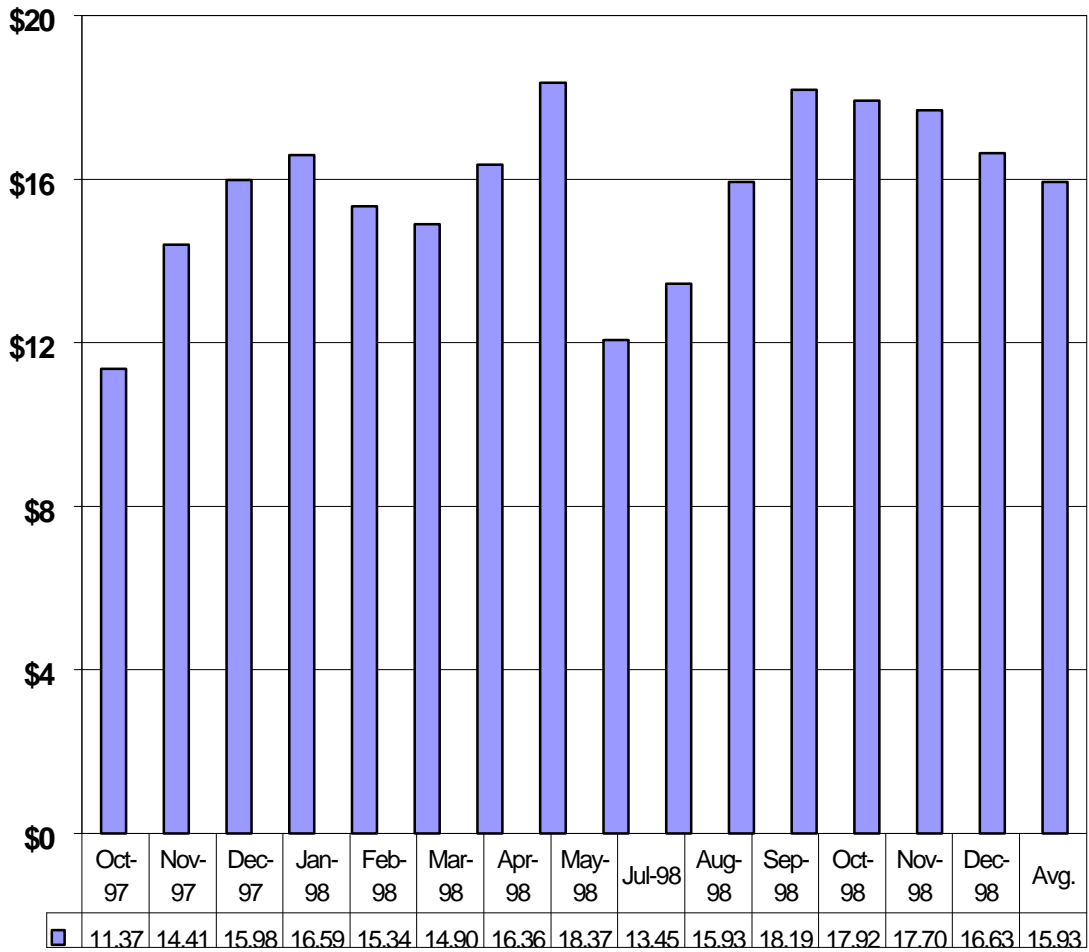


	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
Mountains											2			
Piedmont								3	1	9	4			
Coast	100		49	114	115	125	30	360	1285	133	4		44	157

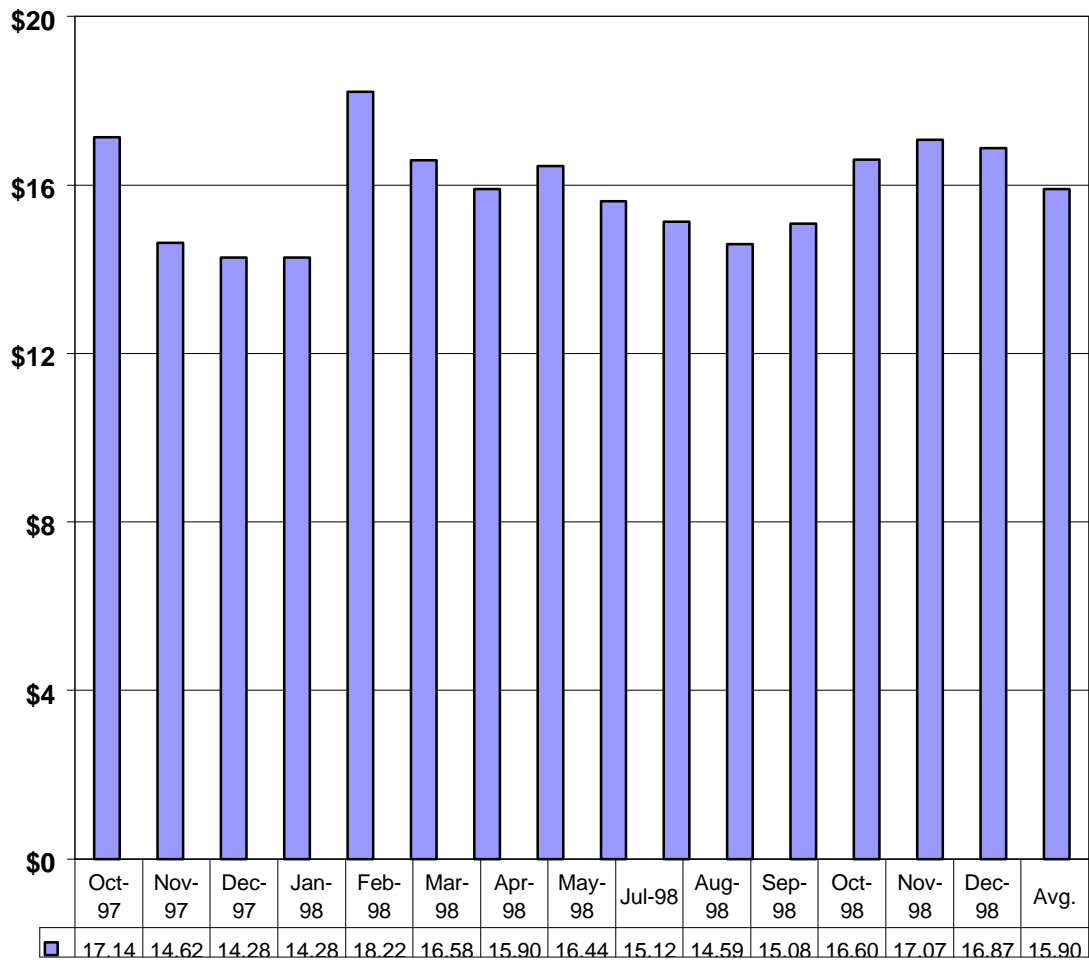
Broccoli, wholesale price, 20 lb. carton



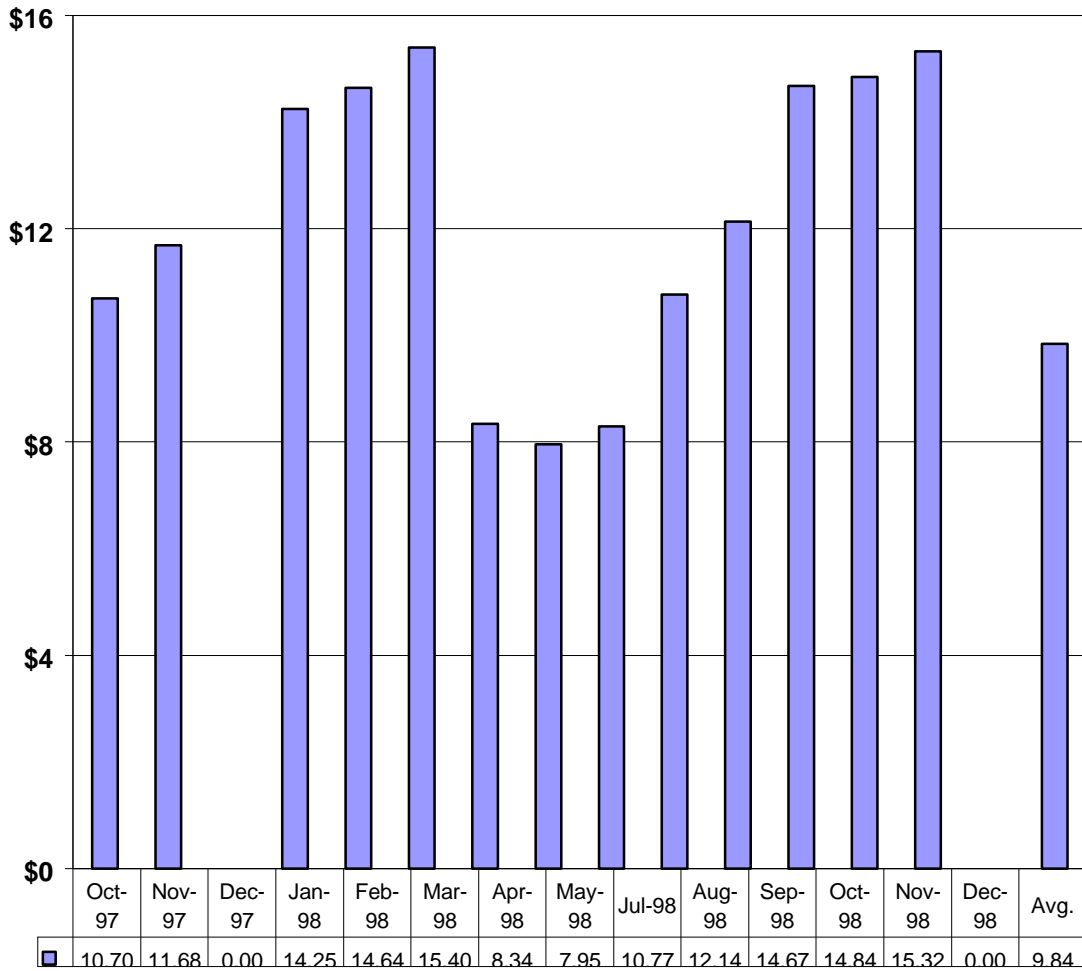
Cabbage, wholesale price, 45 lb. carton



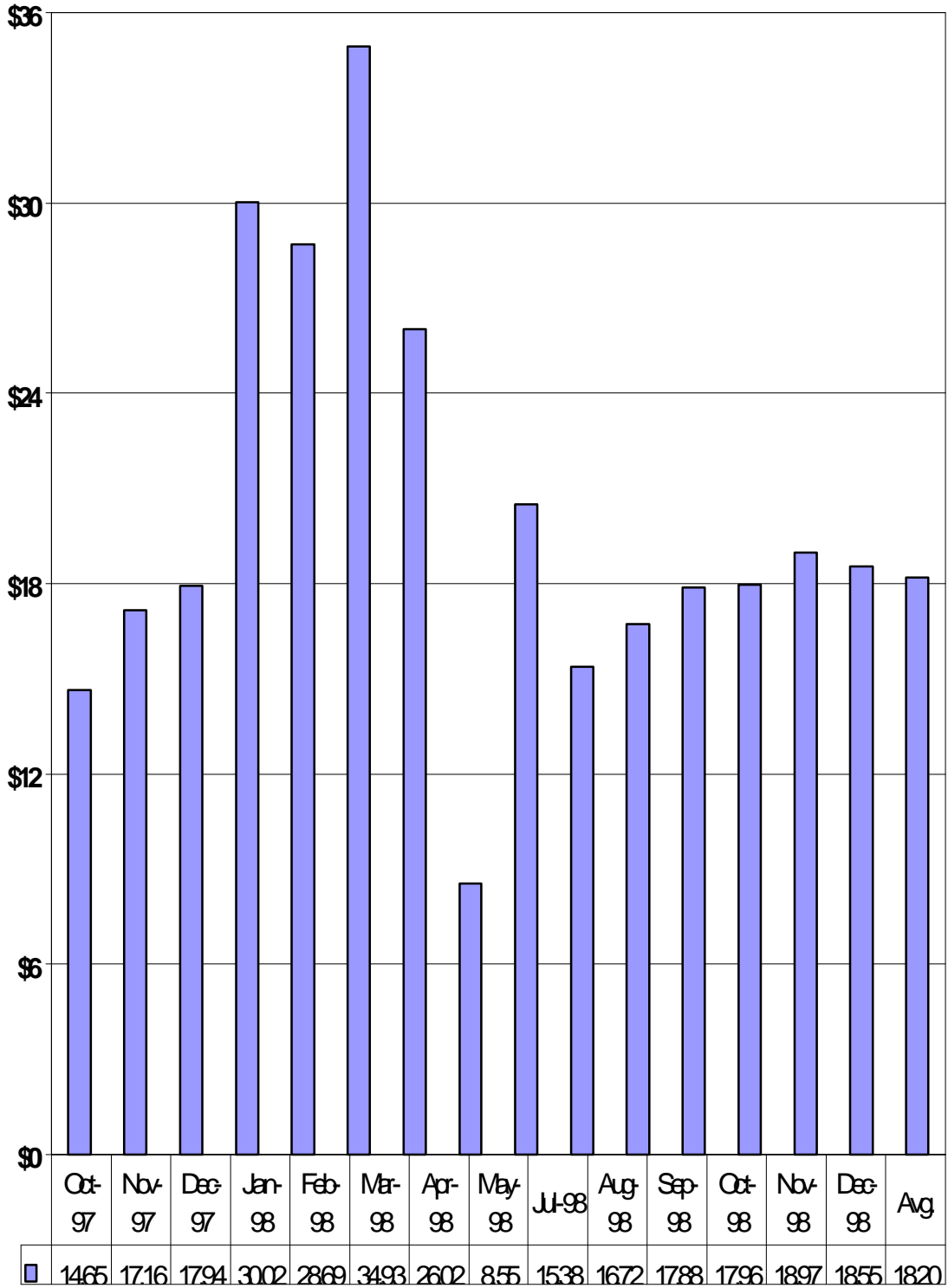
Carrots, wholesale price, 25 lb. (master pack)



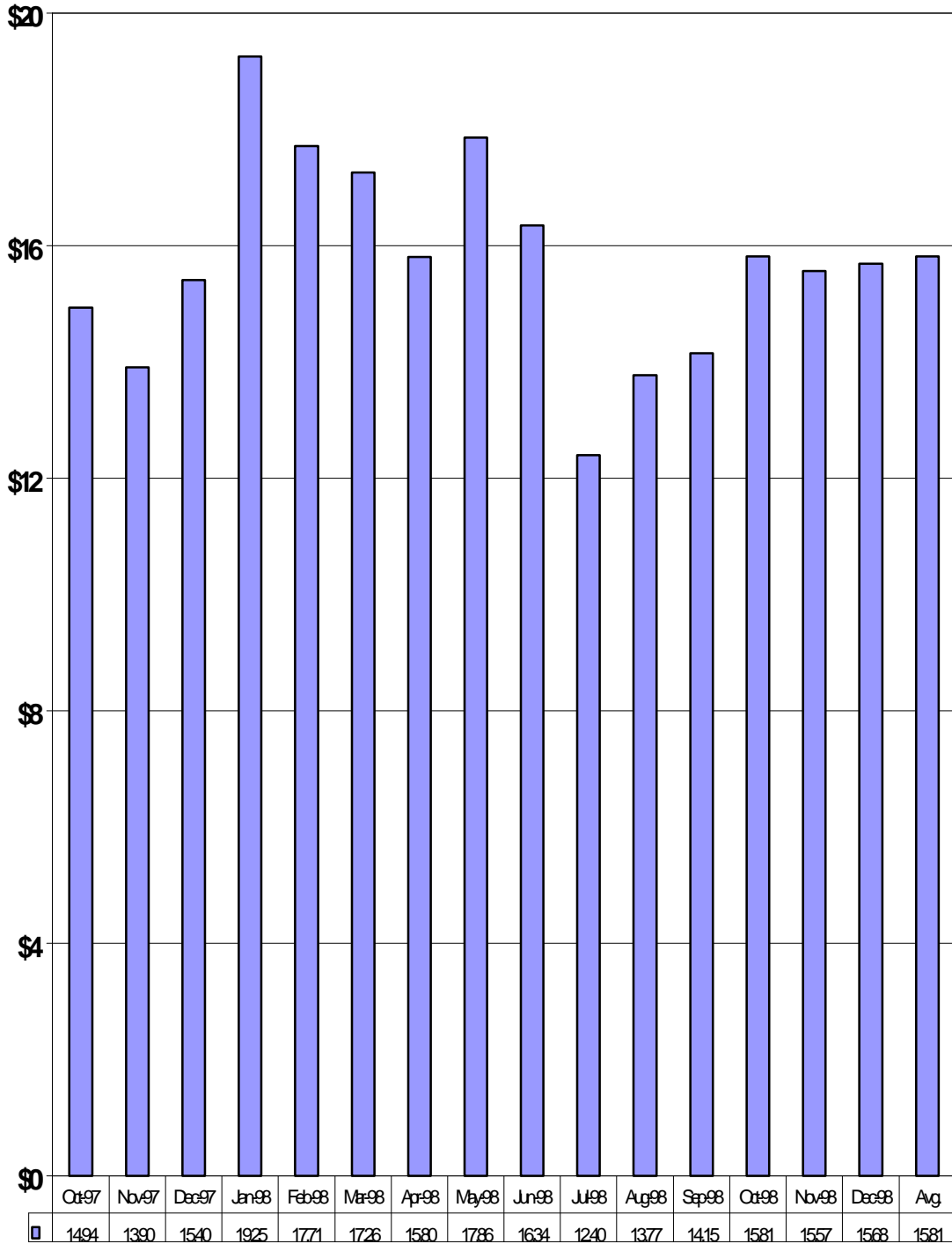
Sweet corn, wholesale price, 42 lb. crate



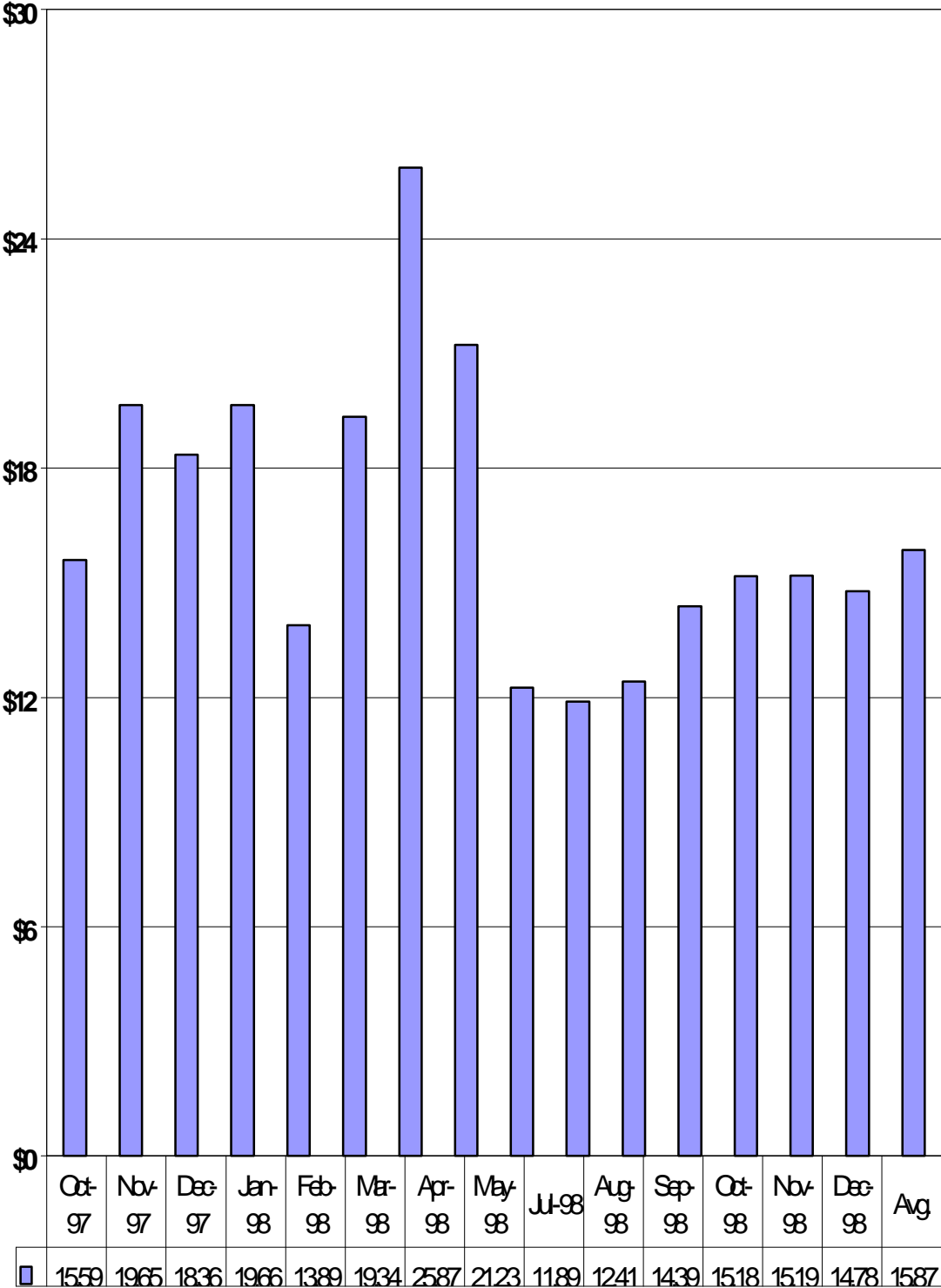
Counters, wholesale price, 20 lb. carton



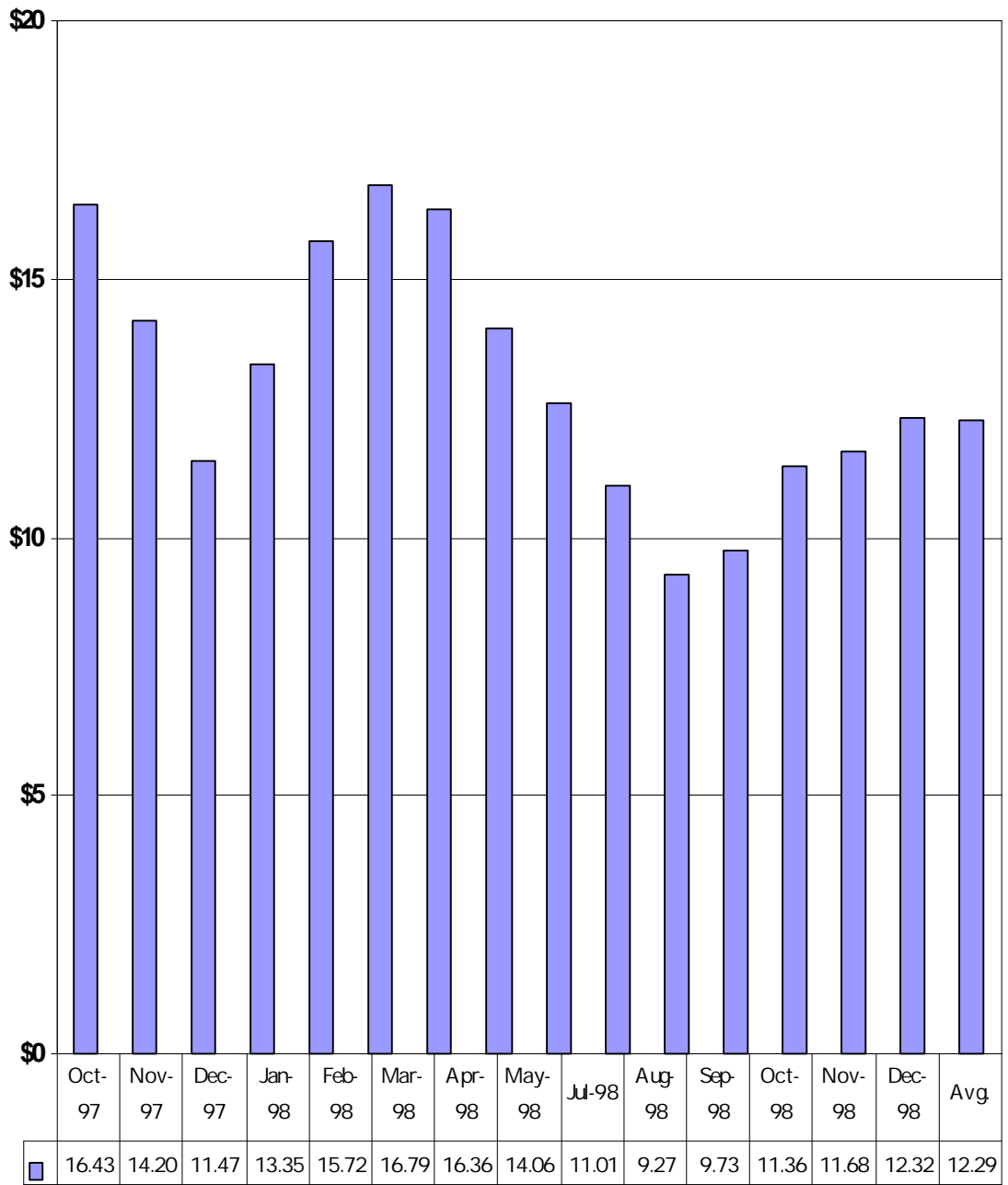
Kale/swiss chard, wholesale price, 25 lb. Ctn (24 count)



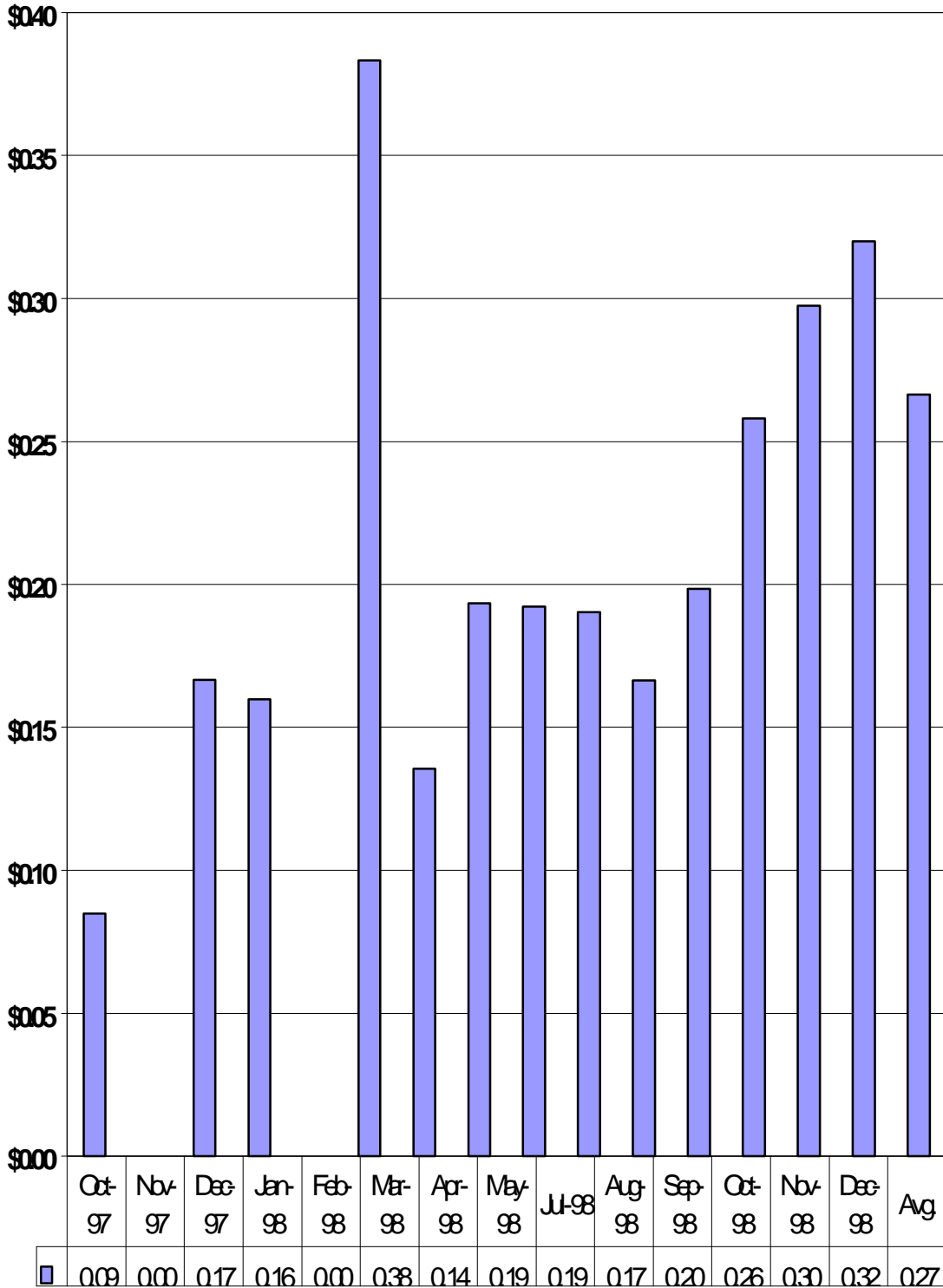
Leaf lettuce, wholesale price, 25 lb. Ctn (24 count)



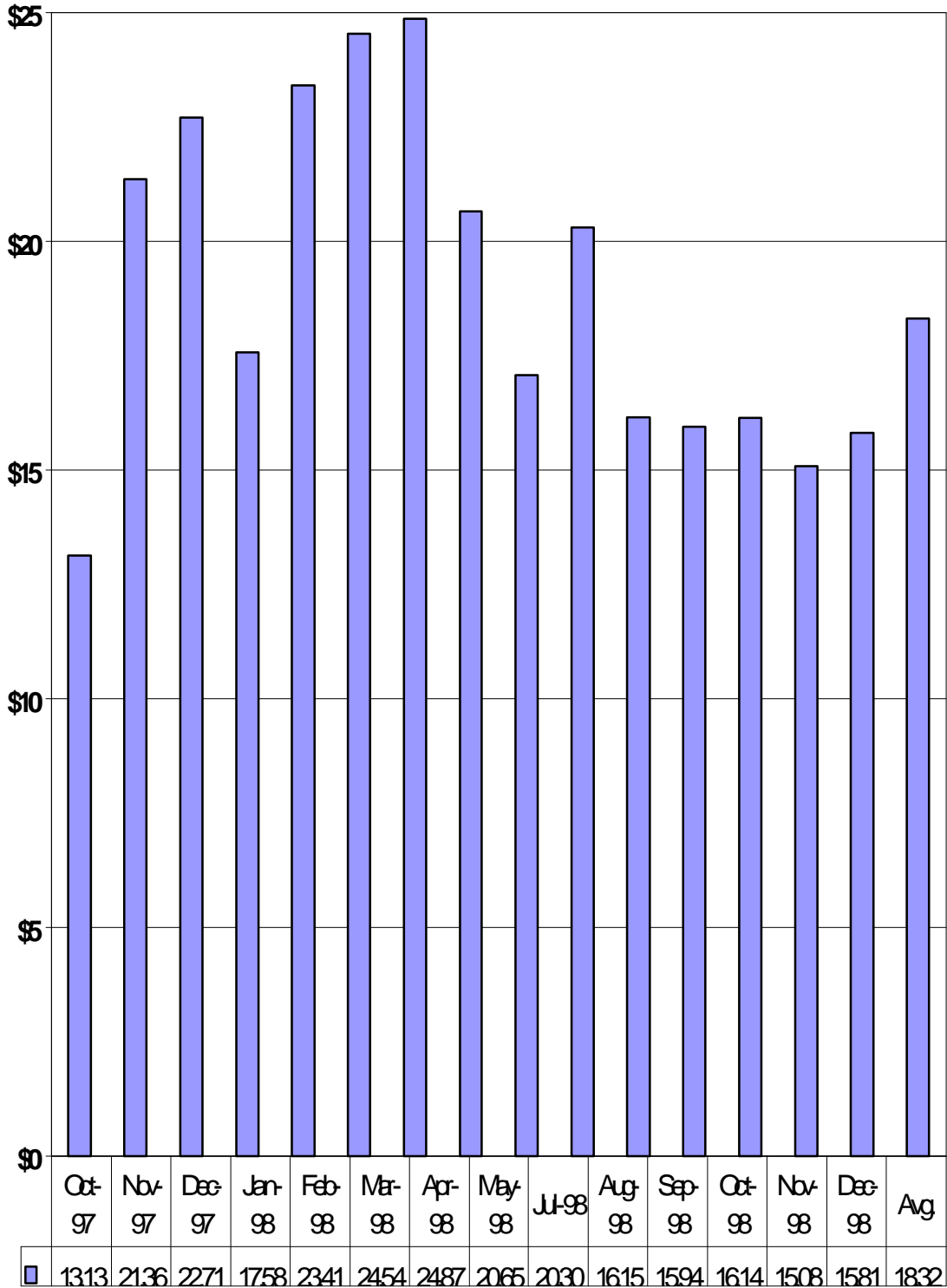
Cantaloupe, wholesale price, 35 lb. ctn.



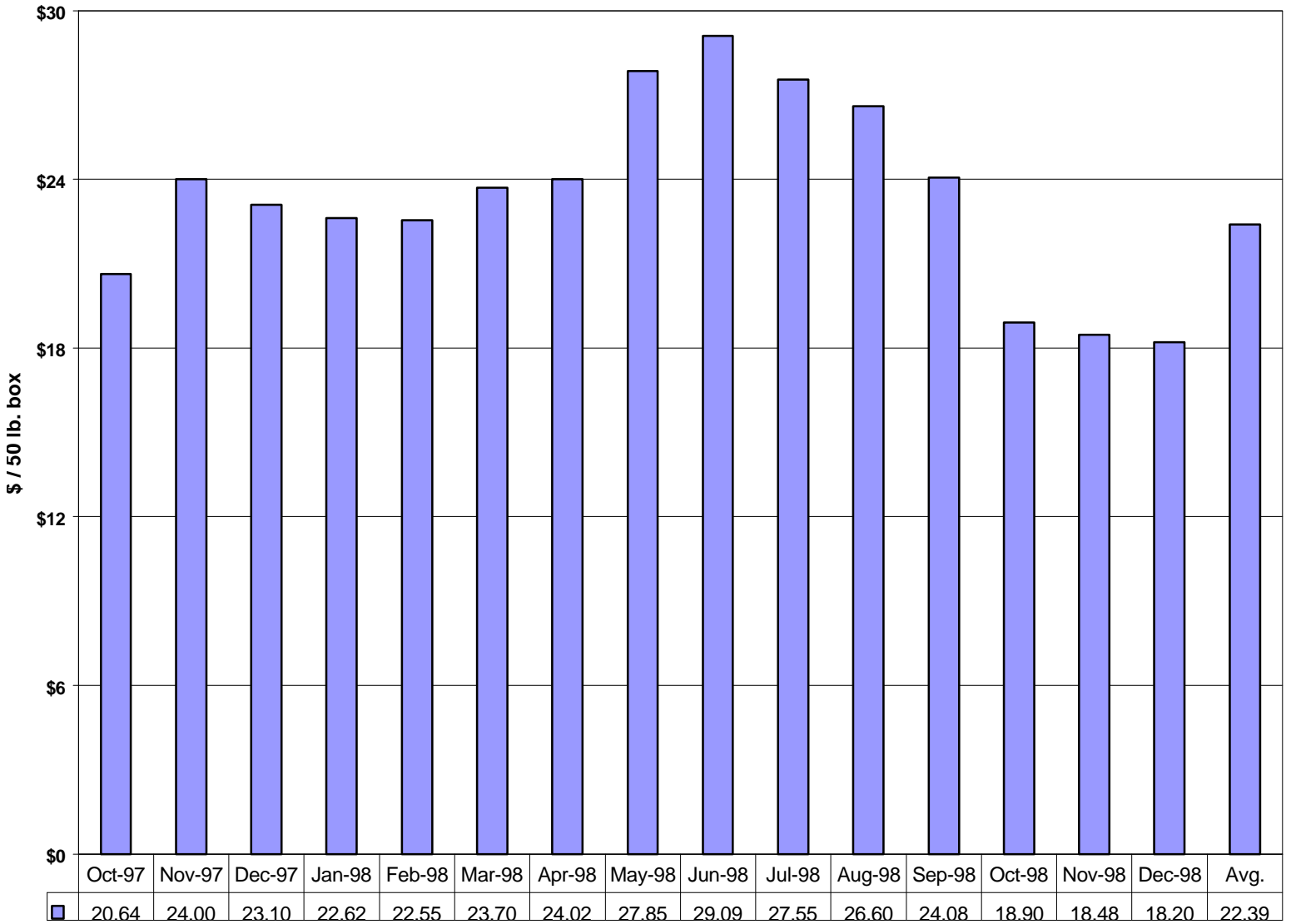
Watermelon, wholesale price, per lb.



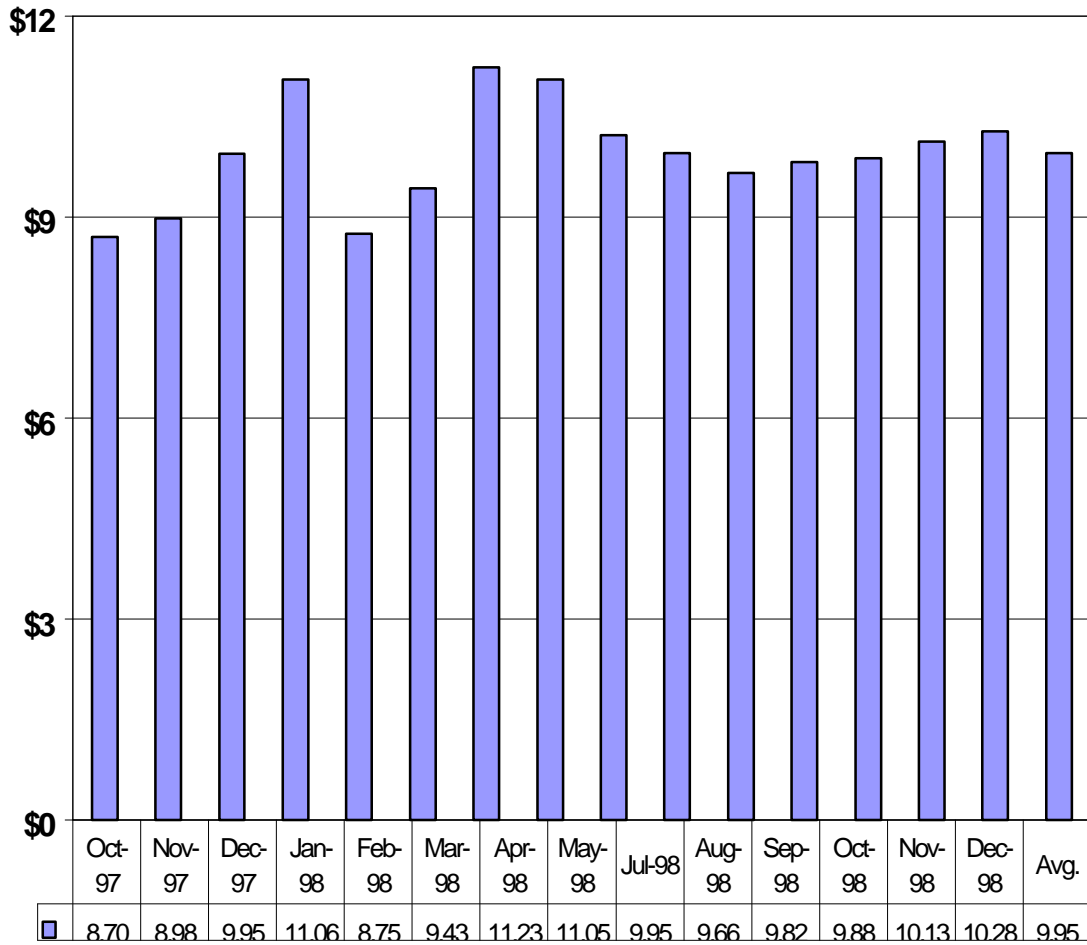
Bell peppers, wholesale price, 25 lb. ctn.



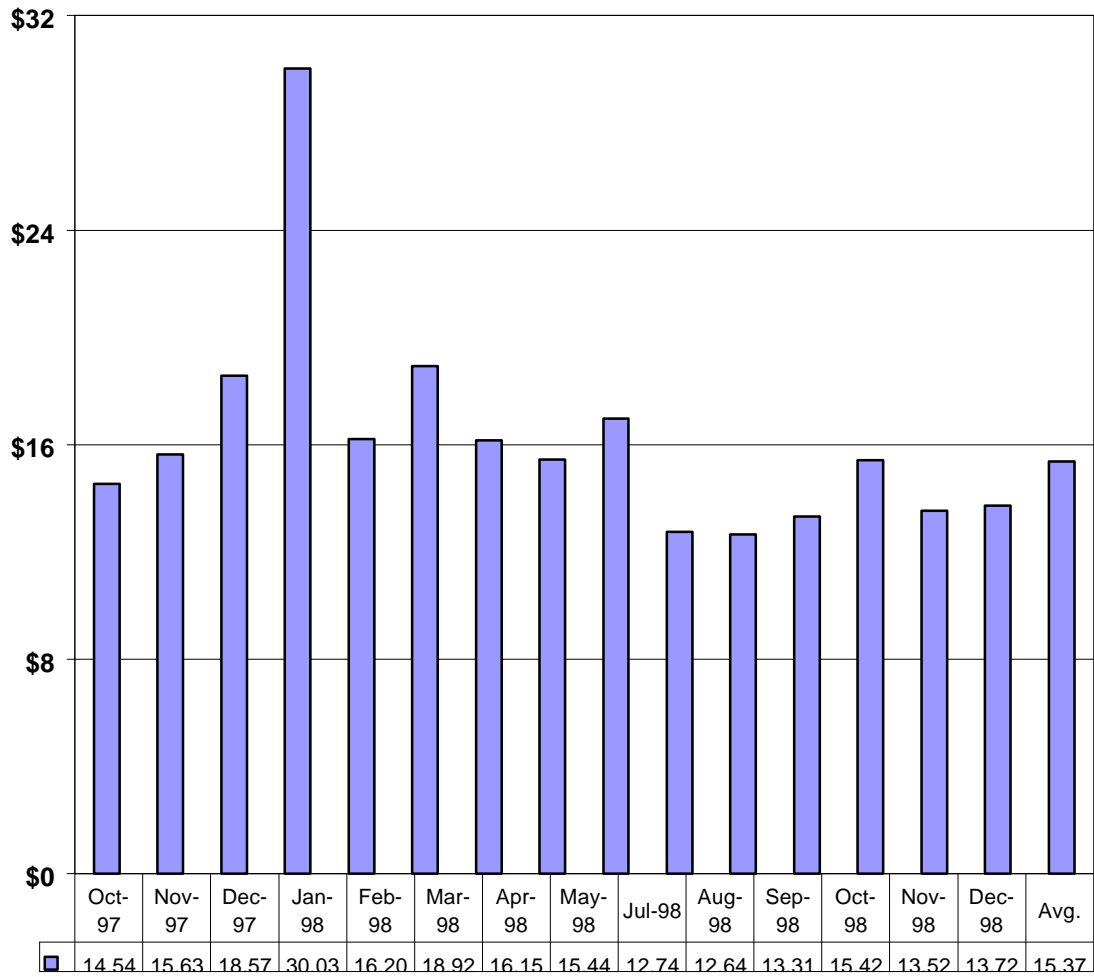
Potatoes, wholesale price, 50 lb. box



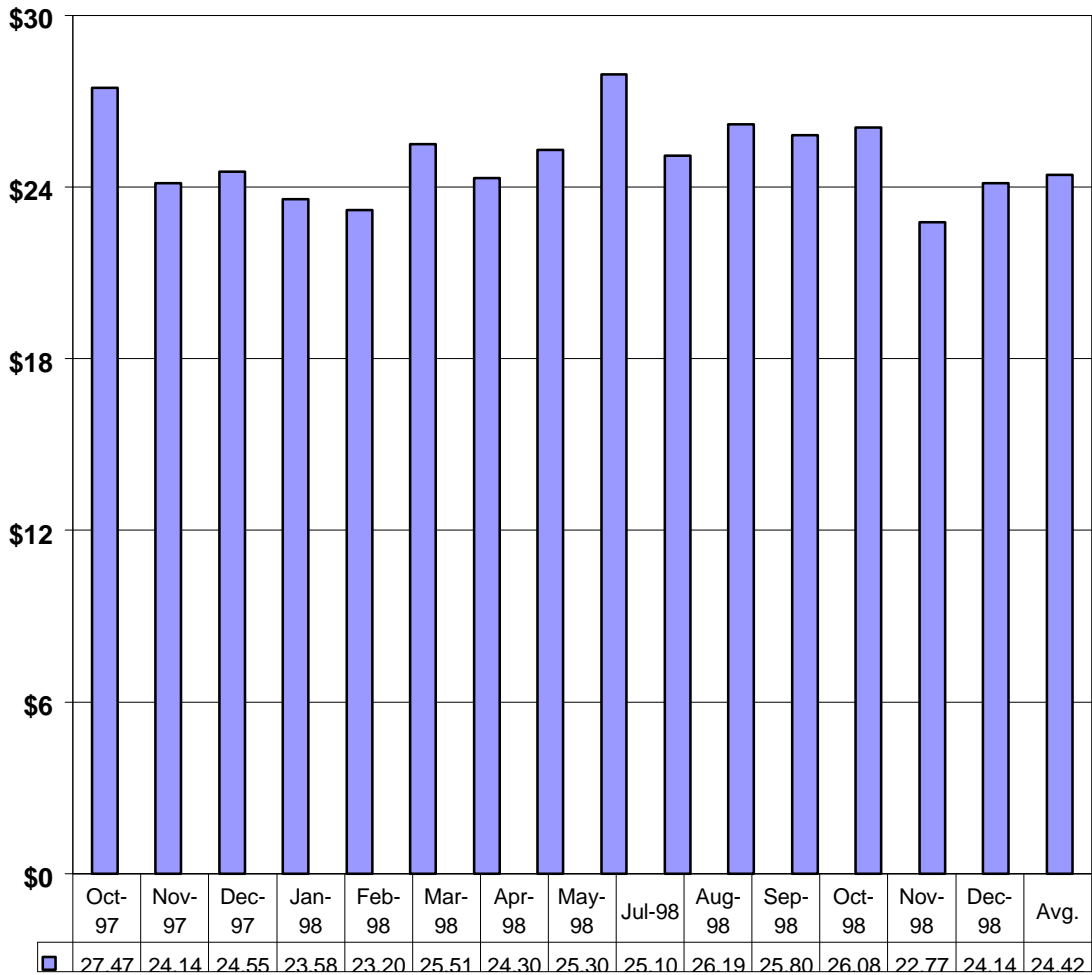
Salad mix, wholesale price, 3 lb. pack



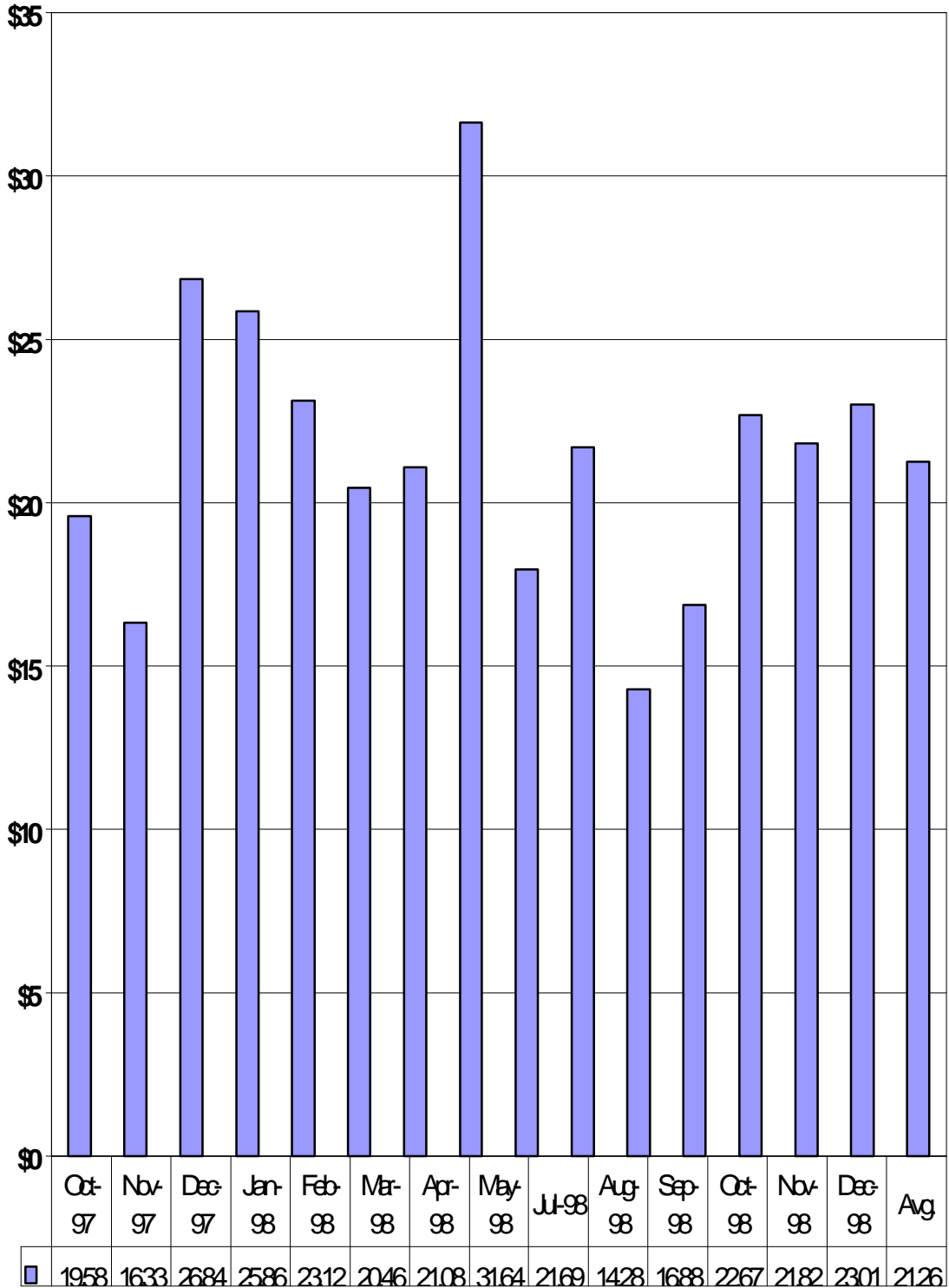
Zucchini, wholesale price, 20 lb. ctn.



Sweetpotato, wholesale price, 40 lb. box



Tomatoes (vine-ripe), wholesale price, 20 lb. ctn



Blueberries, wholesale price, 12 pint flat

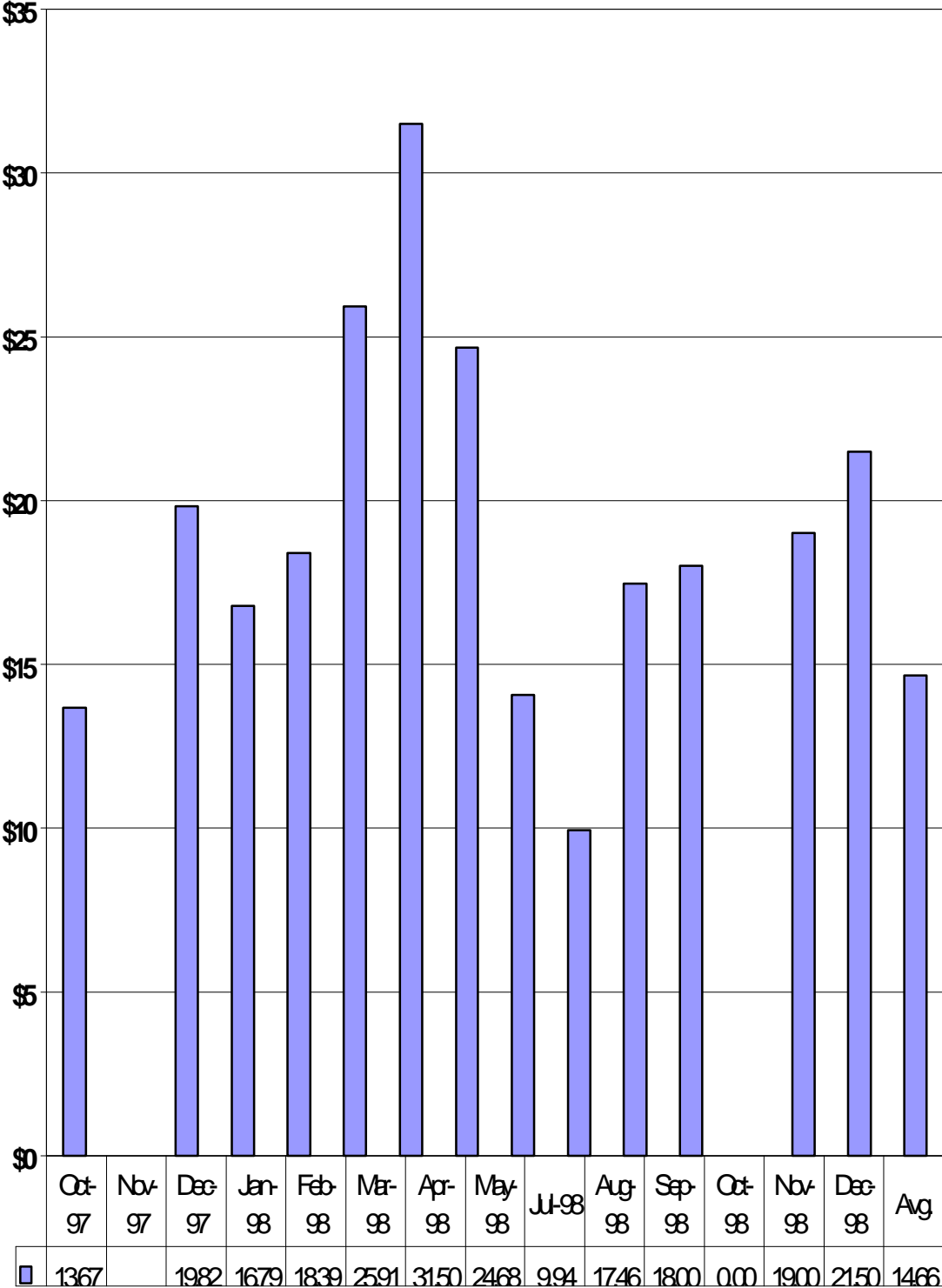


Table 5. Total organic volume bought by North Carolina specialty retailers from wholesalers, average price paid to growers, and total monetary expenditures for sixteen commodities over the October 1997-December 1998 period, for all regions.

Item	Unit	Average Price / unit	Total Volume Bought	Total Expenditure (dollars)
broccoli	20 lb. carton	16.03	10,920	\$175,026
cabbage	45 lb. carton.	15.93	1,605	\$25,556
carrots	25 lb. master	15.93	11,806	\$187,661
sweet corn	42 lb. crate	9.84	6,191	\$60,891
cucumber	20 lb. carton	18.20	2,637	\$47,989
kale / chard	25 lb. ctn. (24 count)	15.81	3,802	\$60,107
leaf lettuce	25 lb. ctn. (24 count)	15.87	8,302	\$131,722
cantaloupe	35 lb. carton	12.29	6,021	\$74,012
watermelon	pounds	0.27	70,616	\$18,815
peppers	25 lb. carton	18.32	2,565	\$46,971
potatoes	50 pound box	22.39	3,527	\$78,964
salad mix	12 pack (3 lbs.)	15.06	15,724	\$236,877
zucchini	20 lb. carton	15.37	3,019	\$46,408
sweetpotato	40 lb. carton	24.42	2,493	\$60,879
tomato	20 lb. carton	21.26	3,674	\$78,102
blueberries	12 lb. flat	14.66	2,720	\$39,874
Total	N/A.	N/A.	N/A.	\$1,369,854

N/A. indicates that information is not applicable.

Wholesaler data revealed that quantities resold and prices varied considerably by month and by region. Oftentimes, increased quantities sold to retailers were associated with peak harvest periods (increased availability) and/or peak consumption periods such as the sweetpotato sales during the Thanksgiving-Christmas holiday period. cursory examination of chart information also revealed that for certain months over the period, wholesaler records indicated that retailers did not purchase an item. It was assumed that zero-activity weeks and months indicated that retailers did not stock an item or purchased the item from a non-surveyed wholesaler. In addition, it is also possible that records are incomplete or retailers purchased the item from an out-of-state wholesaler or direct from an adjacent state grower. In general, Coastal retailers tended to operate larger sales volume stores and thus purchased greater quantities of organic vegetables and blueberries. Price data also indicated that, on average, the price paid to growers for product shipped to Coastal retailers was lower than the price paid to growers for produce that was shipped to the two other regions. It is unclear as to why lower prices were paid for product destined for Coastal retailers. Possible explanations could include higher assembly, transport, or business transaction costs for wholesalers who compensated for

higher marketing costs by paying a lower price to growers. As noted earlier, Table 5 information combined all regional data into a simpler summary transaction table. Total expenditure figures were calculated as the product of the quantity bought times average price. It was estimated that wholesalers paid approximately \$1.37 million for the sixteen surveyed products. Of this total amount paid, wholesaler records indicated that about \$127,500 was paid to North Carolina organic produce growers. Recall that retailer records indicated that they paid about \$54,915 directly to North Carolina organic growers for the purchase of the sixteen targeted organic fruits and vegetables over the fifteen-month study period. Thus, in total, surveyed wholesalers and retailers directly paid North Carolina organic fruit and vegetable growers approximately \$182,500 over the fifteen-month study period for targeted organic fruits and vegetables.

Wholesaler data concerning the average price paid to organic growers provided an opportunity to compare prices for fruit and vegetables sold in North Carolina. Table 6 summarized reported price available from several North Carolina sources. Table 6 entries included the wholesaler survey information (that is, the average price paid to growers by wholesalers for organic produce) over the 15-month study period, the April 1998 through September 1998 farm line price to growers for conventionally grown produce as reported by the State Farmers' Market in Raleigh, and the 1998 season average farm price for conventionally grown produce items as reported by NCDA & CS in the January 1999 *North Carolina Farm Report*. Thus, Table 6 information reflects average price paid to growers although the time sequence for each average price calculation differed in length. In addition, prices for conventionally grown fruits and vegetables sold at the State Farmers' Market and the NCDA & CS season average farm price data did not coincide exactly with the sixteen surveyed commodities in this study. For example, NCDA & CS does not publish annual planting or price data for conventionally grown North Carolina broccoli, kale/chard, cantaloupe, salad mix, and zucchini. Thus, a full set of comparable commodity prices were not available to insert in Table 6 information.

Table 6. Comparison of 1998 published prices for North Carolina conventionally grown fruits and vegetables with prices paid by wholesalers to organic growers for selected fresh fruits and vegetables.

Commodity	Sales Unit	FOB Season Average Farm Price for conventionally grown, 1998	FOB Farm Line Price for conventionally grown, Raleigh Farmers' Mkt., 1998	Avg. price paid by wholesalers for organic, 1997-98
broccoli	20 lb. carton	N/A	N/A	\$16.03
cabbage	45 lb. carton.	\$4.28	\$6.44	\$15.93
carrots	25 lb. master	N/A	N/A	\$15.90
sweet corn	42 lb. crate	\$5.63	\$9.75	\$9.84
cucumber	20 lb. carton	\$2.70	\$5.50	\$18.20
kale / chard	25 lb. ctn. (24 count)	N/A	\$6.83	\$15.81
leaf lettuce	25 lb. ctn.	N/A	N/A	\$15.87

	(24 count)			
cantaloupe	35 lb. carton	N/A	\$8.77	\$12.29
watermelon	each	\$1.15	\$1.93	\$5.40
peppers	25 lb. carton	\$6.00	\$13.25	\$18.32
potatoes	50 pound ctn.	\$3.08	N/A	\$22.39
salad mix	3 lb. pack	N/A	N/A	\$15.06
zucchini	20 lb. carton	N/A	\$10.24	\$15.37
sweetpotato	40 lb. carton	\$10.90	\$11.79	\$24.42
tomato	20 lb. carton	\$5.40	\$11.00	\$21.26
blueberries	12 lb. flat	\$10.96	\$16.27	\$14.66

N/A indicates that the information is not available.

NCDA & CS prices were adjusted to reflect the organic sales units in order to facilitate price comparisons. For example, cucumber prices reflected a 20-pound sales unit rather than a bushel or hundredweight price. It is, of course, difficult to compare prices exactly since commodities can appear similar but there could be significant differences in grade, quality, size, and harvest dates for items. Of course, perishability considerations can also limit the amount of product that a retailer can buy and resell during a specific period. In addition, it is difficult to determine if buyers would be willing to pay the same price if additional quantities were available. Nevertheless, Table 6 information suggests that prices paid to organic growers were significantly greater than prices paid to conventional produce growers with similar items. There were two notable exceptions to this generalization: 1) average organic blueberry price was less than the farmer's line blueberry price at the Raleigh Farmers' Market; and 2) the organic sweet corn was not significantly different than the farmer's line price at the Raleigh Farmers' Market.

For additional insight about organic prices, wholesaler price paid information can be compared with prices paid by retailers for fruits and vegetables directly purchased from North Carolina growers. Recall that retailer price paid information was summarized in Table 3 while wholesaler price paid information was summarized in Table 5. Price paid information was extracted from portions of Tables 3 and 5 to create Table 7 information.

Table 7. Average price received by North Carolina organic growers paid for items sold directly to retailers and average price received by North Carolina organic growers for items sold to wholesalers, by commodity, October 1997-December 1998, based on retailer and wholesaler survey data.

Commodity	Sales Unit	Avg. price paid by retailers directly to organic growers, in 1997-98	Avg. price paid by wholesalers to organic growers, in 1997-98
broccoli	20 lb. carton	\$22.00	\$16.03
cabbage	45 lb. carton.	18.45	15.93
carrots	25 lb. master	12.50	15.90
sweet corn	42 lb. crate	14.28	9.84
cucumber	20 lb. carton	14.00	18.20

kale / chard	25 lb. ctn. (24 count)	26.00	15.81
leaf lettuce	25 lb. ctn. (24 count)	21.25	15.87
cantaloupe	35 lb. carton	N/A.	12.29
watermelon	each (20 lbs.)	7.80	5.40
peppers	25 lb. carton	31.25	18.32
potatoes	50 pound ctn.	37.50	22.39
salad mix	3 lb. pack	15.06	9.95
zucchini	20 lb. carton	16.40	15.37
sweetpotato	40 lb. carton	45.60	24.42
tomato	20 lb. carton	19.00	21.26
blueberries	12 lbs. (12 pint flat)	20.64	14.66

N/A. indicated that information was not available.

Wholesalers were also provided with an opportunity to identify other organic fruits and vegetables that they thought were needed to satisfy current market demand. Table 8 contains responses obtained from wholesalers who were able to identify other organic fruits and vegetables needed (apart from the 16 targeted commodities) to satisfy current market demand. Wholesalers were asked to provide specific purchase quantity estimates for each organic fruit or vegetable identified and responses were summarized in Table 8. In most cases, wholesalers provided quantity data in case lot amounts rather than pounds. Because wholesalers ship organic commodities in several different containers and weights, it was useful to convert data into pounds of product.

Table 8. Organic commodities and annual volume estimates desired by organic wholesalers, in pounds.

Commodity	Annual volume (lbs.)
Winter squash	129,600
Spinach	115,200
Green beans	54,000
Asparagus	52,800
Peaches	48,750
Yellow squash	48,000
Leeks	45,300
Collards	44,400
Apples	6,300
Brussel sprouts	4,800
Beet / turnip roots	4,600
Small berries	4,300
Total	558,050

Wholesalers indicated that organic winter squash and organic spinach were two items that they believe they could sell significant additional volume. Wholesalers indicated a willingness to purchase the above-listed commodities under appropriate market circumstances. Recall that retailers noted that organic winter squash, green beans, and

asparagus were items that they could sell additional amounts and were willing to purchase from local organic growers. Of course, organic growers should check with retailers and wholesalers in order to confirm buyer willingness to purchase local supplies of any of the above listed commodities before planting.

Wholesaler Qualitative Data

Wholesalers were asked to identify factors that limited their sales. Wholesalers identified two interrelated issues that limited sales: 1) organic produce was, at times, difficult to find; and 2) higher organic prices paid by wholesalers, retailers, and consumers tended to limit sales. Relative to conventional prices, wholesalers believed that the prices they paid for organic produce were, on average, about 25 percent higher. Lower prices would encourage greater consumption. During the past two years, on average, wholesalers indicated that organic produce sales had increased 15 percent but the range was considerable. One wholesaler indicated that sales were unchanged during the past two years while another wholesaler reported that sales had increased 35 percent. Wholesalers were equally divided about prospects for expansion in organic produce sales during the next two years. Two wholesalers anticipated substantial sales increases while the other two wholesalers thought that organic produce sales would increase slightly during the next two years.

All wholesalers believed that organic certification was an important consideration when they bought produce. However, one of the wholesalers indicated that they did not require organic produce to be certified before it was purchased. Wholesalers also bought certified transitional produce because of customer requests. Transitional produce was often cheaper than organic produce and wholesalers believed that it filled a market niche for retailers who wanted a cheaper alternative to organic. Advertising expenditures were often limited but three of four wholesalers indicated that they advertised regularly in organic trade publications. Targeted ads provided wholesalers with an opportunity to alert retailers about the mix of products available. One wholesaler saw little benefit from advertising so they did not advertise at all. Two wholesalers planned to increase their advertising budget modestly over the next two years while another wholesaler was unsure about the advertising budget but anticipated that their advertising budget would decrease. Wholesalers supported the adoption and use of ecolabels but also indicated that they were not widely used in the produce industry. One wholesaler was aware that 'ecolabeled' apples were available but had little experience with ecolabels. All wholesalers indicated that they would handle ecolabeled produce if items were available and customers were interested. Wholesalers, like retailers, believed that the demand for organic produce was independent of the demand for conventionally grown items. All wholesalers believed that the potential for organic sales was very great and were committed to expansion within the organic food category.

Wholesalers suggested that organic growers would benefit greatly if they advised wholesalers about how many products are available and when they plan to begin crop harvest. Wholesalers also recommended that growers provide them with current information about the status and condition of the crop. Frequent updates via fax or phone would help wholesalers plan short-term purchases and also encourage more local buying.

Planning and communication would enhance sales prospects for both growers and wholesalers. One wholesaler encouraged organic growers to pay greater attention to postharvest handling practices such as grading, pack consistency, precooling, and proper sizing. Two wholesalers also mentioned that they required all suppliers to have product liability insurance. Grower product liability coverage is often required because retailers request it as a condition-of-sale. During the 1990s, many conventional fruit and vegetable growers needed to purchase product liability insurance because retailers wanted financial protection in case an unregistered chemical was used in the production or handling of a crop. Until recently, product liability insurance was considered unnecessary for organic produce growers. However, wholesalers indicated that selected retailers have insisted on product liability coverage from all suppliers. Thus, many wholesalers have requested that all suppliers, including organic growers, provide proof of product liability coverage.

Bulk Buyer Survey

Twenty-three companies were known to buy bulk quantities of organic field crops from suppliers east of the Mississippi River. We were able to contact only sixteen of the twenty-three firms because of incorrect phone numbers and other logistical problems. Three of the sixteen firms indicated that they did not purchase organic bulk commodities from North Carolina growers. As a result, thirteen firms participated in bulk crop survey. Four of the thirteen companies were located or operated offices in North Carolina while the remaining companies maintained offices outside North Carolina. Out-of-state locations for many buyers required that data collection efforts focus on telephone responses to questions. Survey questions were designed to elicit short-answer quantity bought and price paid information from company representatives. The last question provided respondents with an opportunity to comment on any aspect of organic bulk crop marketing. A copy of the survey instrument is listed in Appendix C.

Survey questions focused on specific information such as: 1) the variety or varieties preferred; 2) quantities bought in 1998; 3) price paid to organic growers; and 4) the standard package size or buying unit. Respondents were invited to offer comments about marketing topics that were likely to impact North Carolina organic growers. Bulk buyers were asked to provide specific purchase data for eight organic commodities. The target commodities were organic peanuts, organic pecans, organic dry beans, organic soybeans, organic lentils, organic peas, organic food grains, and organic feed grains.

Initially, respondents were asked why they bought bulk organic commodities from North Carolina growers. Most often, respondents indicated that they wanted to support the North Carolina organic community, they wanted to lower acquisition costs, or they did so for economic reasons such as saving transportation expenses. Buyers noted that local organic livestock producers needed a source for large quantities of organic feed and several buyers believed that East Coast soybeans had higher protein content than did Midwestern grown soybeans. For this reason, it made economic sense for them to source feed products from local organic growers. One buyer also noted that additional product would be bought if a local, central organic collection facility could be organized and operated.

Organic Peanuts and Organic Pecans

Six of seventeen respondent companies typically bought bulk loads of organic peanuts. Only two firms, however, indicated that they purchased organic pecans and one firm did not provide information about their pecan purchases. For discussion purposes, peanut and pecan responses were grouped together. The six companies that bought organic peanuts preferred to buy 'Valencia' peanuts. Each company purchased different amounts of peanuts, with the two largest volume companies buying in excess of 150 tons of organic peanuts per year. Three companies bought smaller amounts ranging between one and two tons annually. One company that bought organic peanuts did not provide variety, volume, or price information. One of the eleven firms that did not buy organic peanuts indicated that it was their intent to buy organic peanuts in 1999. Larger volume buyers preferred peanuts to be packaged in containers that held either 55 pounds of peanuts or a bulk bin. Smaller volume buyers found smaller units such as a 25-pound box as an acceptable container. Peanut buyers paid growers between \$.80 per pound and \$1.50 per pound, with the largest volume buyer paying the lowest price to growers. The company that bought organic pecans did not have a variety preference, bought about one ton last year, and preferred 25-pound shipping containers. Last year, prices were about \$5 per shelled pound. Peanut buyers indicated that large proportions of organic peanuts were obtained from New Mexico growers because they believed that the aflatoxin risk was lower with New Mexico peanuts than with east-coast produced peanuts. Buyers also believed that organic peanuts were a complicated crop to grow using organic methods and encourage growers to improve quality to have a competitive edge in the organic market. Few comments were offered about organic pecans but the buyer noted that organic prices fluctuated dramatically from year-to-year.

Organic Dry Beans (excluding soybeans and lentils)

Nine firms indicated that they had purchased organic dry beans during 1998. Five companies bought 'Black Turtle' kidney beans while two other companies focused their purchases on garbanzo beans. Two of the firms indicated that they bought organic lima, pinto, and navy beans in 1998. Larger volume companies preferred to buy truckload lots of kidney beans while others indicated that 25-pound or 50-pound containers were acceptable. In total, surveyed companies bought approximately 800,000 pounds of kidney beans in 1998 and paid growers between \$.30 and \$.50 per pound. Respondents bought about 10,000 pounds of organic garbanzo beans in 1998, most often in 50 pound containers. Grower were paid about \$.80 per pound. Approximately 40,000 pounds of pinto and navy were bought in 1998. Companies accepted loads in 50-pound containers but did not provide price paid estimates. Buyers offered organic dry bean growers several suggestions. First, growers were encouraged to certify loads as grown organically and GMO free (Genetically Modified Organism). One buyer encouraged growers to have storage facilities available so that beans could be stored during short-term surplus periods. Finally, competition increased during 1998 and buyers encouraged growers to reintensify quality control efforts. Most buyers sought cleaner loads last year, free from dust and small rocks, and indicated that growers would experience heavy price discounts if loads contained excess trash.

Organic Soybeans

Eight companies indicated that they purchased organic soybeans in 1998. Five companies indicated a preference for 'Clear Hylum' variety beans while two other companies did not indicate a variety preference but instead wanted high protein beans (greater than 40 percent). Vinton, Natto, Coresoy, and Buff were other organic soybean varieties preferred by bulk buyers. One buyer expressed a preference for 'Vinton' soybeans but believed that they could not be grown successfully in North Carolina. Collectively, the eight respondents bought approximately 3,100 tons of organic soybeans in 1998. Soybean prices varied considerably. The lowest price paid was about \$.13 per pound (\$260 per ton) and the highest price paid for organic soybeans was \$.43 per pound (\$860 per ton). The volume-weighted average price paid by all companies was \$.24 per pound or about \$480 per ton in 1998. Most companies preferred truckload lots but would also buy bushel containers if needed. Respondents were concerned that organic soybean prices were weak because of poor economic performances in the Japanese and Asian markets combined with increased supplies available from Brazil. High protein content, GMO free, and organic certification are requirements in the current market.

Organic Lentils

Eight companies indicated that they purchased bulk loads of organically grown lentils during 1998. Four firms expressed a preference for either green or red lentils while the other four firms preferred only green varieties. Respondents bought approximately 395 tons of organic lentils in 1998. Prices paid to growers ranged between \$.27 per pound and \$.40 per pound. Companies bought loads in 25-pound, 50 pound, and full truck lots. Several respondents believed that lentils would be hard to produce in North Carolina on a cost competitive basis. One buyer cautioned that demand for organic lentils was very specialized and characterized product movement as 'slow' during most periods of the year. Buyers insisted that product must be clean of trash elements and market contacts were critical for financial success.

Organic Peas

Five companies purchased organic black-eyed peas and split green peas in 1998. Respondents purchased about 137 tons of peas from organic growers. Last year, grower prices ranged between \$.20 per pound for larger lots and \$.40 per pound for smaller lot quantities. Companies bought peas in either 25-pound bags or in truckload units. Respondents advised potential organic pea growers to locate and discuss market needs with processors in the South before they planted peas. The advice of another respondent was that the organic pea market can be saturated easily so growers should develop a marketing plan.

Organic Grains

Nine firms purchased organic soft red wheat, organic hard, red wheat, organic barley, organic oats, organic sorghum, organic rye, and organic spelt in 1998. Firms indicated that cereal companies bought most of the organic grains that respondents sold in 1998.

Unfortunately, companies indicated that a significant portion of the 1998 organic feed crop was unsold so carryover stocks would affect 1999 prices. Respondents bought approximately 800 tons of organic soft red wheat and spelt. Organic growers received about \$0.10 per pound for the wheat and spelt. Buyers indicated that the wheat market was weak during most of 1998 while spelt market purchases were steady. One company bought 288 tons of organic rye in 1998 but did not provide price information. Several firms bought a total of 90 tons of organic barley, oats, and sorghum in 1998 and paid organic growers an average of \$4 per bushel, or about \$133 per ton. One firm also bought 23 tons of pearled barley in 50 pound bags and paid growers \$.31 per pound (\$15.50 per bag).

Organic Feed Grains

Only two respondents bought organic feed grains in 1998. One firm purchased about 8,000 bushels of organic yellow corn per month, or nearly 2,700 tons annually. This company paid organic corn growers about \$4.90 per bushel during most periods in 1998. Another firm purchased 900 tons of soy splits and feed peas. The company paid organic growers about \$6 per bushel during 1998 for both crops. One company indicated that it was exploring the possibility of buying feed peas during 1999 but had not made a final decision at the time of the interview. Both firms preferred to buy feed grains in either truckload or rail car units. Feed grain buyers were most concerned the risks posed by aflatoxin contamination. Extensive testing of loads was common by buyers and they insisted that growers become proactive in quality assurance practices. For example, buyers insisted that all loads carry lot numbers so as to provide them with load tractability.

Other Bulk Load Issues

Ten respondents had contractual arrangements with organic growers to ensure that production practices, quality control, and sales term expectations were understood by buyers and growers. All buyers required growers to have organic certification. A number of organic certificates were accepted including OCIA, QAI, and OGBA (Organic Growers and Buyers Association). Only five firms indicated that they were certain the company would accept CFSA certification. Four respondents indicated that if QAI accepted CFSA certification, then CFSA certification would be acceptable to the company. Only one company indicated that CFSA certification was not acceptable at present. Respondents encouraged North Carolina organic bulk crop producers to focus on quality, obtain contracts, diversify cropping activities, and put lot numbers on bags and loads. One suggestion was for growers to encourage construction of a soymilk / tofu plant in North Carolina. Finally, respondents were asked to name other organic bulk crops that local growers should consider planting. Respondent suggestions included canola, cover crop seed, blue corn, tobacco, brown sesame seeds, cashews, hazelnuts, honey, and Spanish peanuts.

Organic Bulk Prices

In addition to the company-specific information provided by bulk buyers, we wanted to obtain organic price data for bulk handled commodities. As mentioned in an earlier

section, Dobbs (1998) reported U.S. organic grain and bean prices and compared organic prices with conventionally grown grain and bean prices between 1995 and 1997. Dobbs found that farm level organic corn prices increased over the three-year period and, on average, were 73 percent higher than conventionally grown corn prices. Organic corn sold at an average price of \$4.50 a bushel compared with the \$2.60 per bushel received for conventionally grown corn. Organic soybean price levels are influenced greatly by the volume of Japanese imports of ‘Clear Hilum’, a preferred variety often used in the production of high quality tofu. In 1997, grower prices for organic soybeans were \$17.80 per bushel, or about twice the prevailing market price for conventionally grown soybeans. A summary of Dobbs’ organic and conventional field crop price comparisons is listed in Table 9.

Table 9. A comparison of organic and conventionally grown corn, soybean, wheat, and oat futures and cash settlement prices for the U.S. between 1995-97, as reported by Dobbs (1998).

Crop Commodity and Year	Prices (\$/Bu) ^a			Price Ratios ^a	
	Organic Farm ^b	Conventional CBOT or MGE ^c	Conventional U.S. Cash price	Organic-Farm / Conventional CBOT or MGE	Organic Farm / U.S. Cash price
Corn, 1995	3.46	2.83	2.56	1.22	1.35
Corn, 1996	5.12	3.86	3.55	1.33	1.44
Corn, 1997	4.50	2.77	2.60	1.62	1.73
Soybean 95	12.52	6.16	5.85	2.03	2.14
Soybean 96	13.41	7.54	7.23	1.78	1.85
Soybean 97	17.80	7.66	7.40	2.32	2.41
Spring Wheat, 95	6.09	4.33	3.95	1.41	1.54
Spring Wheat, 96	7.63	5.07	4.78	1.50	1.60
Spring Wheat, 97	6.49	4.0	3.74	1.62	1.74
Oats, 95	1.97	1.64	1.46	1.20	1.35
Oats, 96	3.17	2.06	2.0	1.54	1.59
Oats, 97	2.96	1.64	1.71	1.80	1.73

^a Average price and ratios are computed only for months where organic price data were available.

^b Organic soybeans are for ‘Clear Hilum’ variety that are cleaned.

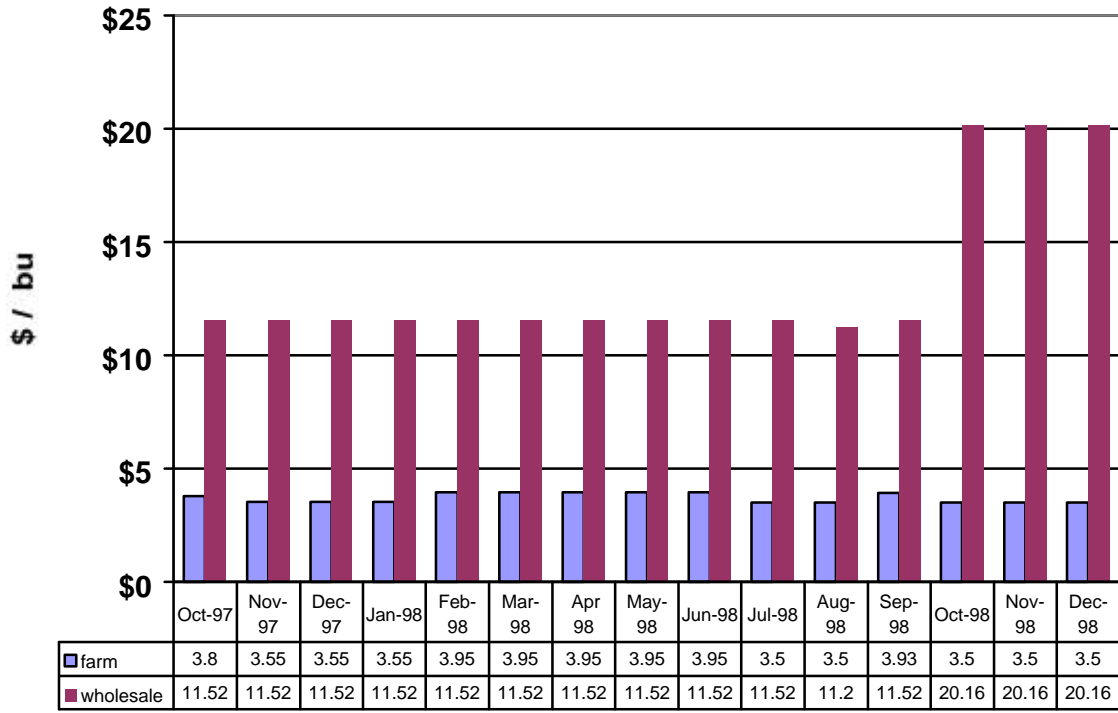
^c Chicago Board of Trade (CBOT) price for corn, soybeans, and oats and Minneapolis Grain Exchange (MGE) price for spring wheat.

Dobbs’ obtained organic field crop price information from the *Organic Food Business News* (OFBN), an organic industry trade publication. OFBN collects, maintains, and sells organic price reports for selected organic commodities. OFBN data are collected from a network of 20 to 40 organic growers and buyer contacts that provide organic price and

volume sold information. Collected information is proprietary but is available on a fee subscription basis ranging from \$157 per year to \$50 per hour for price research requests.

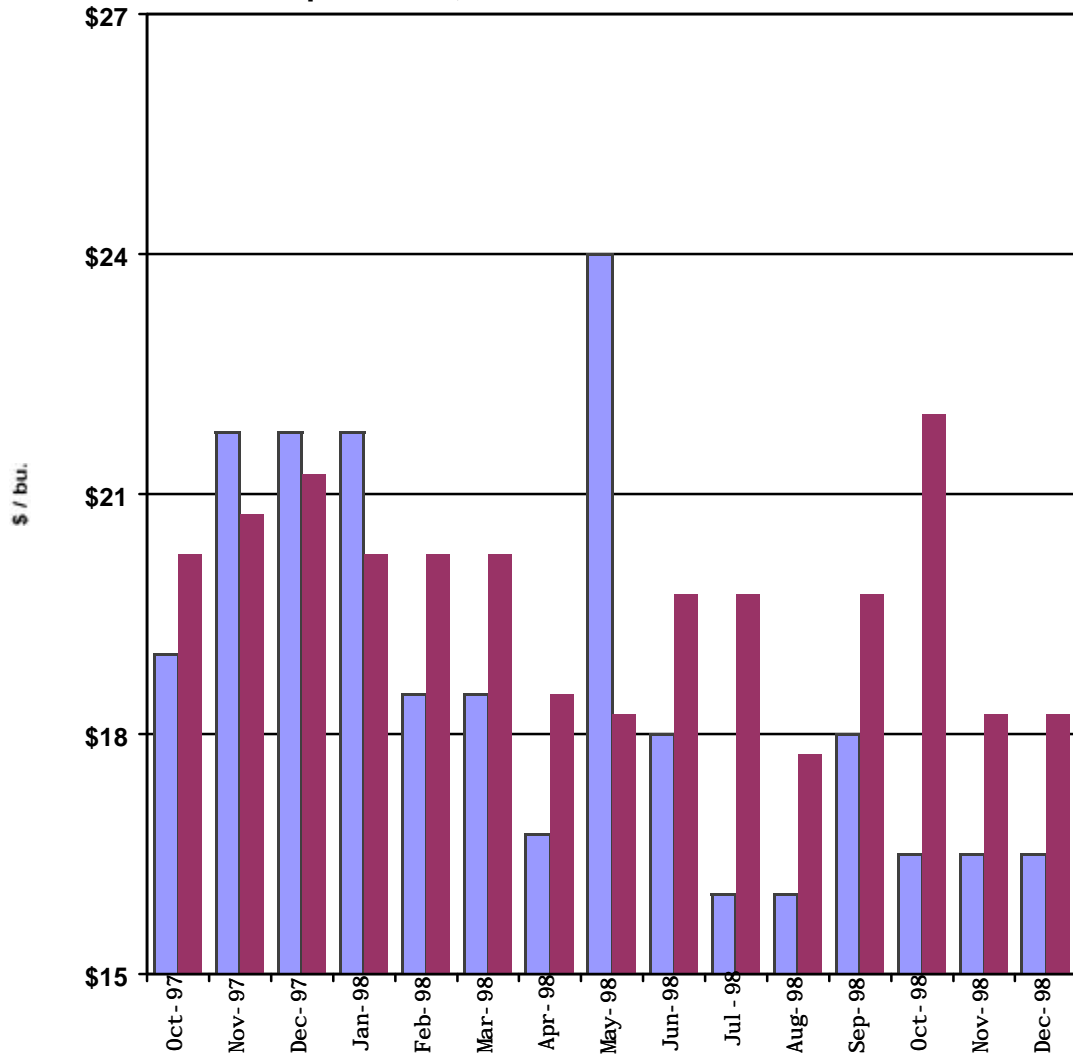
OFBN agreed to sell CFSA average monthly farm and wholesale price data for six organic bulk commodities. The OFBN monthly price data reported national average organic price for six bulk commodities sold between October 1997 and December 1998, a period that parallels the North Carolina retail and wholesale fruit and vegetable price data obtained earlier. Monthly U.S. average farm and wholesale prices were obtained for organic barley, organic yellow corn, organic soybeans, organic pinto beans, organic canola, and organic winter wheat. Reported OFBN wholesale prices reflect the average price paid by a buyer. This definition of wholesale price differs from the wholesale price definition used in reporting organic fruit and vegetable wholesale prices in that the wholesale price is not the price paid to organic growers by the wholesaler. Average monthly farm and wholesale price data are presented on the next set of six charts. It is likely that North Carolina average organic field crop prices will differ from national average prices as reported by OFBN. Reasons for national and local price differences include larger supply availability in other regions, quality differences, load assembly and consolidation costs, buyer location, and transport costs.

**U.S. Organic Barley price / bu.,
farm and wholesale (hulled)**



farm
 wholesale

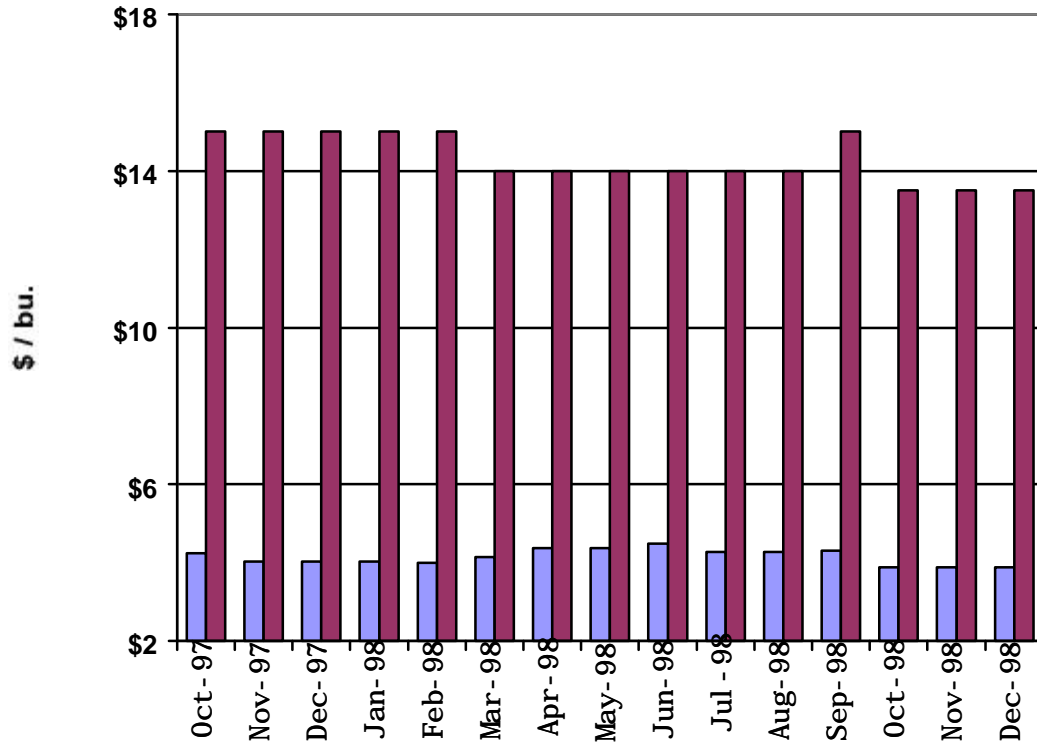
U.S. Organic Soybean ('Clear Hilum')
price / bu., farm and wholesale



	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	1-Jul	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
■ farm	19	21.77	21.77	21.77	18.5	18.5	16.75	24	18	16	16	18	16.5	16.5	16.5
■ wholesale	20.25	20.75	21.25	20.25	20.25	20.25	18.5	18.25	19.75	19.75	17.75	19.75	22	18.25	18.25

■ farm ■ wholesale

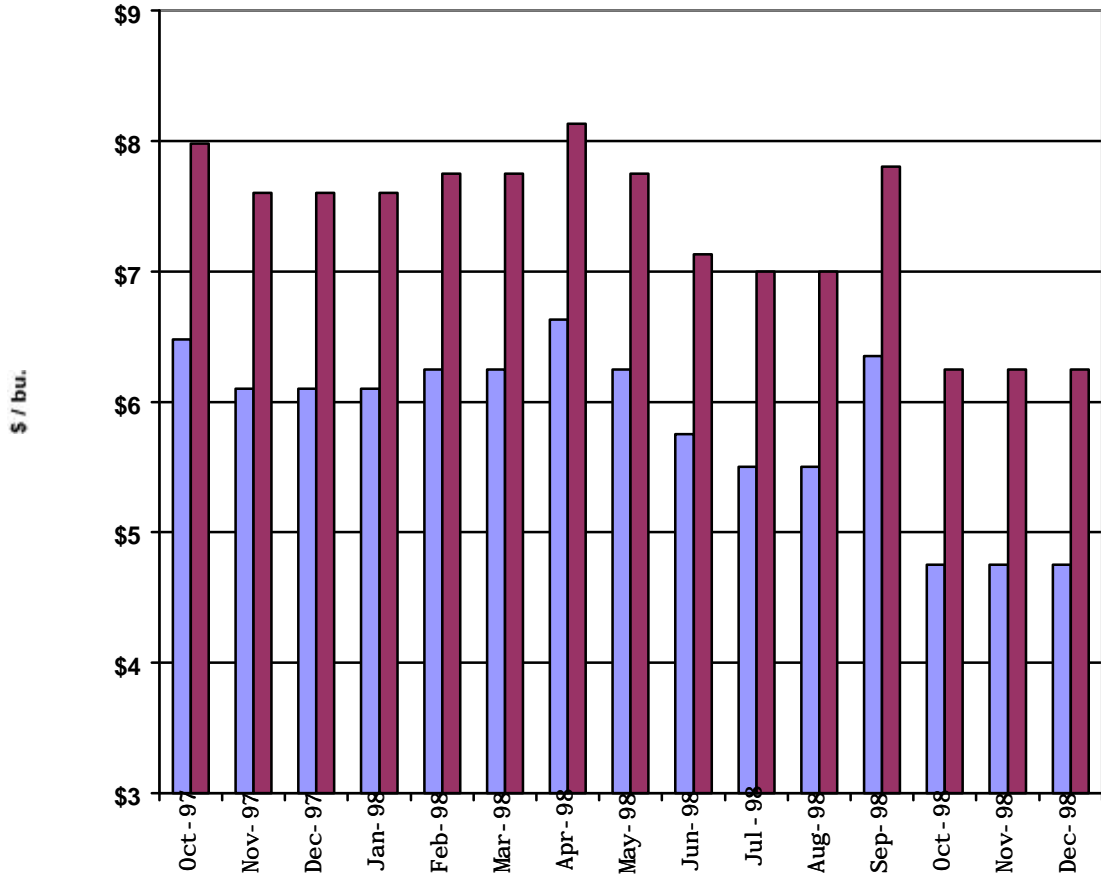
**U.S. Organic Yellow Corn price / bu.
farm and wholesale**



	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
■ farm	4.25	4.03	4.03	4.03	4	4.15	4.38	4.38	4.48	4.27	4.27	4.31	3.88	3.88	3.88
■ wholesale	15	15	15	15	15	14	14	14	14	14	14	15	13.5	13.5	13.5

■ farm ■ wholesale

**U.S. Organic Winter Wheat price / bu.,
farm and wholesale**



	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
■ farm	6.48	6.1	6.1	6.1	6.25	6.25	6.63	6.25	5.75	5.5	5.5	6.35	4.75	4.75	4.75
■ wholesale	7.98	7.6	7.6	7.6	7.75	7.75	8.13	7.75	7.13	7	7	7.8	6.25	6.25	6.25

■ farm ■ wholesale

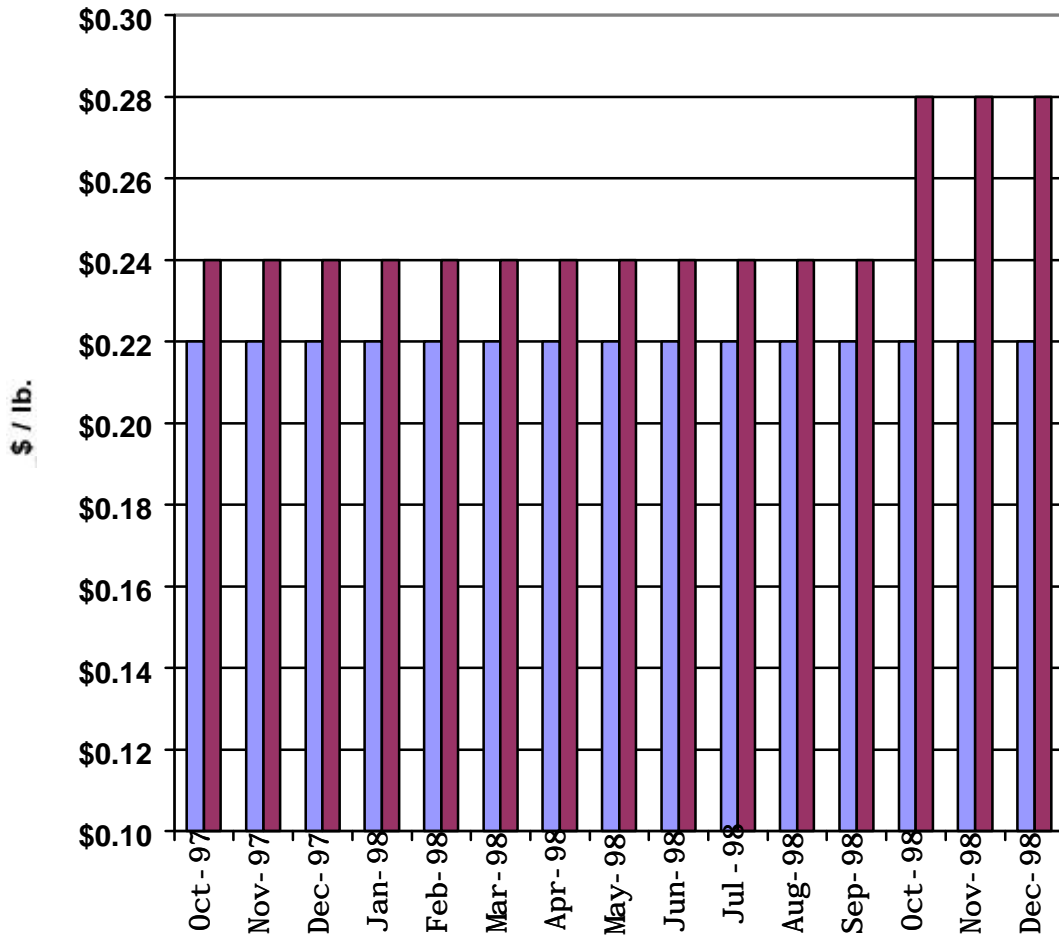
U.S. Organic Pinto Bean price / lb., farm and wholesale



	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
■ farm	0.42	0.41	0.42	0.42	0.5	0.57	0.54	0.54	0.38	0.38	0.38	0.4	0.43	0.43	0.43
■ wholesale	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.79	0.79	0.79

■ farm ■ wholesale

U.S. Organic Canola price / lb., farm and wholesale



	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
■ farm	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
■ wholesale	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.28	0.28	0.28

farm
 wholesale

Analysis of OBFN average monthly price data revealed substantial differences between farm and wholesale prices for organic barley and organic corn over the fifteen months. Wholesale prices for organic barley and organic corn were three to five times greater than the farm level prices. Alternatively, organic soybean farm prices were greater than the average wholesale price in four of fifteen months (Nov.97, Dec.97, Jan.98, and May 98). The farm and wholesale price difference remained constant at \$1.50 per bushel for organic winter wheat over the period. Finally, the farm-wholesale price differential remained fairly constant for organic canola and organic pinto beans over much of the study period. However, the price difference expanded significantly for canola and pinto beans during the last three months of 1998, a period when wholesale prices for both crops increased between 25 and 50 percent.

OBFN Organic Vegetable Farm and Wholesale Prices

In addition to organic field crop prices, OFBN also collects and sells wholesale and farm price information for selected organic vegetables, non-conventional dairy and organic eggs. For comparative purposes, CFSA decided to purchase selected organic vegetable, dairy, and egg price data from OFBN. OFBN collected monthly price data for other commodities in a manner similar to collection of the organic field crop data, that is, it maintains a network of U.S. organic wholesalers and farmers that provide transaction data via a telephone survey. The average wholesale price for organic fluid milk sold between April 1998 and January 1999 was unchanged at \$18.00 per hundredweight. Over the same period, wholesale prices for organic eggs ranged between \$1.50 and \$2.06 per dozen. Organic wholesale and farm prices for four vegetable commodities are summarized in Table 10. Average monthly U.S. organic vegetable prices were obtained for the October 1997 through April 1999 period, a time frame that includes the earlier October 1997 through December 1998 study period. In Table 10, two prices are listed. The first price listed is the average monthly farm price received by organic growers. The second price listed (to the right of the slash) is the average monthly wholesale price reported by wholesalers for the listed organic vegetables. As before, the definition of wholesale price as used by OBFN differs from the earlier definition of vegetable wholesale price used earlier in that the OBFN wholesale price is the average sales price as reported by wholesalers rather than the average price paid to organic growers for organic vegetables bought by wholesale companies. In general, however, there seems to be a great deal of consistency between the survey data collected and the OFBN wholesale price data. OFBN vegetable price data was, in general, between seasonal high and low price values for the four organic vegetables.

Table 10. Average monthly farm price received and wholesale selling price for four organic vegetables as reported by the Organic Food Business News, 1997-1999.

Time	Leaf lettuce (24 count ctn.)	Salad Mix (3 lb. master)	Tomatoes (20 lb. carton)	Sweetpotatoes (40 lb. carton)
Oct.97	\$9.09 / 14.63	\$6.93 / 11.83	\$17.39 / 28.73	\$23.50 / 39.77
Nov. 97	\$15.67 / 24.41	\$6.93 / 12.84	\$23.13 / 36.14	\$19.36 / 34.21
Dec. 97	\$12.15 / 20.41	\$7.62 / 15.25	\$22.71 / 34.22	\$19.98 / 31.75
Jan. 98	\$19.98 / 26.23	\$8.17 / 16.54	\$23.80 / 36.09	\$21.23 / 28.55

Feb. 98	\$9.17 / 12.63	\$8.00 / 12.58	\$21.31 / 24.23	\$20.84 / 31.38
Mar. 98	\$17.82 / 24.82	\$9.27 / 13.46	\$16.24 / 22.31	\$19.78 / 29.62
Apr. 98	\$21.44 / 39.64	\$8.86 / 14.61	\$15.50 / 29.23	\$20.61 / 29.20
May 98	\$22.67 / 31.24	\$7.85 / 12.57	\$25.00 / 37.75	\$19.59 / 29.20
Jun. 98	\$8.29 / 13.43	\$7.88 / 11.80	\$17.87 / 28.85	\$18.75 / 27.70
Jul. 98	\$9.79 / 13.08	\$8.13 / 11.89	\$16.21 / 19.10	\$18.48 / 29.35
Aug. 98	\$9.52 / 13.85	\$8.33 / 10.78	\$12.95 / 17.39	\$19.29 / 30.92
Sep. 98	\$9.75 / 16.79	\$8.08 / 11.09	\$10.38 / 17.14	\$23.23 / 39.40
Oct. 98	\$8.50 / 16.33	\$8.36 / 11.31	\$19.96 / 30.54	\$23.33 / 38.35
Nov. 98	\$12.29 / 19.24	\$8.69 / 11.70	\$20.69 / 32.02	\$17.67 / 28.58
Dec.98	\$10.50 / 16.19	\$8.14 / 12.44	\$26.97 / 36.64	\$16.46 / 28.05
Apr. 99	\$9.68 / 16.26	\$6.93 / 10.49	\$15.14 / 23.86	\$17.76 / 27.66

Herbs and Medicinals

An original intent of this study included an assessment of local marketing opportunities for North Carolina grown herb and medicinal products. Between 1996 and 1997, herbal and botanical supplement sales increased 18 percent to a record level \$3.5 billion. Within the U.S. nutrition industry, sales increases for herbal and botanical supplements were the largest of any items within the nutrition sector (Nutrition Business Journal, 1998). Sales outlets for herb and medicinal product include natural food/health chain stores, mass market stores, multilevel marketing firms, and mail order business outlets. Natural food stores sales of herbs and botanicals expanded 19 percent to \$1.3 billion in 1997. In mass market outlets, ginkgo biloba, ginseng, garlic, St. John's wort, and echinacea ranked as the largest sales volume leaders, together accounting for three-fourths of single herb sales. The complexity of the herb, medicinal, and botanical supplement industry precluded a thorough market analysis as part of this study. However, Dr. Jeanine Davis, a researcher at the Mountain Horticultural Crops Research and Extension Center near Asheville, N.C., has initiated a study to examine the herb and medicinal industry. Dr. Davis has developed an extensive herb research program and published several studies that have examined new and alternative cultural techniques for a variety of herbs. Dr. Davis intends to complete an herb industry study during 1999 and will publish findings as soon as possible. To assist herb producers in the interim, Appendix F contains detailed information about fifteen companies known to buy medicinal herbs. The listing for each company typically includes the name and address of the company, the name of a contact individual, a list of products often bought by the company, and amounts companies buy. While we believe that Appendix F information is correct, herb growers are encouraged to verify the accuracy of the information in Appendix F since herb markets are fluid and the herb industry changes rapidly.

Summary

The North Carolina organic industry is a small but increasingly important sector within the agricultural community. Demand for organic foods in North Carolina and the U.S. is growing. Twenty-seven natural food store retail operators indicated that organic sales for poultry, dairy products, and produce all exceeded \$1,500,000 in 1998 and extrapolation of retailer survey data suggested that annual organic produce sales (retail value) could have exceeded \$5,000,000 in 1998. Surveyed retailers indicated a willingness to purchase 297,158 pounds of organic produce items that could be provided by North Carolina organic growers. Retailer and wholesaler purchase records indicated that between October 1997 and December 1998, they paid directly to North Carolina organic growers approximately \$182,500 for the sixteen targeted organic fruits and vegetables examined in this study. In total, surveyed wholesalers indicated that they paid organic fruit and vegetable growers in excess of \$1.37 million for the sixteen targeted organic fruits and vegetables over the fifteen-month study period. In addition, wholesalers identified and expressed a desire to purchase an additional 558,000 pounds of other organic fruit and vegetable items. Surveyed retailers and wholesalers indicated that they expected organic sales to increase between 10 and 15 percent over the next two years. National organic certification standards and standards are likely to be enacted in late 1999 or early 2000 and respondents indicated strong support for enactment of federal guidelines. Retailers and wholesalers expressed support for new label designations such as an ecolabel that would provide consumers with additional options and choices in product selection.

Organic consumers are willing to pay price premiums for organic products. In part, customers purchase organic foods because they perceive organic foods are healthier, nutritious, and grown in an environmentally and sustainable manner as compared to other food products available. Most often, wholesalers and retailers were willing to pay organic suppliers between a 20 and 25 percent higher price when compared with conventionally grown produce. Retailers indicated that if a specific organic produce item was not available, most customers left the store and did not purchase conventionally grown produce if it was available. A wide array of organic products is now available in a variety of retail outlets including natural food stores, mainstream grocery stores, supermarkets, and community farmers' markets but the mix and availability of items is expected to increase over the next two years. This study found that organic growers tended to receive substantial price premiums for organic produce and field crops and price premiums encourages supply expansion. North Carolina natural food retailers and wholesalers expressed a desire and willingness to buy more North Carolina grown organic fruits and vegetables. Over a 15-month study period, monthly volume and price information was collected from survey participants in order to provide additional marketing insight about the potential for the North Carolina organic industry. While out-of-state organic suppliers will remain an important source for organic product, study findings suggest that additional niche market sales opportunities exist for North Carolina organic growers. Bulk field crop buyers also expressed a desire to source selected field crops from North Carolina organic growers. In particular, organic grains and peas were identified as bulk field crops that had sales potential for North Carolina organic growers. Using information contained in this report, organic growers need to evaluate carefully all sales options and alternatives available to them. Every farm operation has a unique set of production and

marketing options that need to be assessed. Survey results are intended to provide guidance for organic growers as they make their own production and marketing decisions.

Retailers and wholesalers believed that access to information about organic production and marketing was critical as the industry expands. Additional efforts were requested that could assist them in their efforts to expand organic educational programs, tours, production demonstrations, loans, and access to market information. As the North Carolina organic industry approaches the 21st century, the production and marketing sectors must continue to focus on delivery of high quality products so industry expansion can continue.

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Appendix A

**ORGANIC PRODUCE RETAILER AND WHOLESALER QUESTIONNAIRE
RESPONDENT DATA**

Name of Store or Firm: _____
Respondent: _____ Position: _____
Mailing Address: _____
Telephone / Fax: _____

RETAILER ATTITUDES

I. Produce Marketed

1. Do you sell:
A. Organic produce only
B. Transitional
C. Both transitional and conventional

2. Date you first started selling organic produce (Month, Year) _____

3. Has there been any interruption in selling organic produce? (Yes, No)
Why? _____

4. Approximately what is the dollar volume of sales per month during summer months?
Conventional _____ Organic _____

5. Do you sell organic beef? (Yes, No)
Approximately, what is the dollar volume of sales annually? _____ \$
Over the next two years, the demand for organic beef will:
A. Increase _____ %
B. Decrease _____ %
C. Remain the same

6. Do you sell organic poultry? (Yes, No)
Approximately, what is the dollar volume of sales annually? _____ \$
Over the next two years, the demand for organic poultry will:
A. Increase _____ %
B. Decrease _____ %
C. Remain the same

7. Do you sell organic eggs? (Yes, No)
Approximately, what is the dollar volume of sales annually? _____ \$
Over the next two years, the demand for organic eggs will:
A. Increase _____ %
B. Decrease _____ %
C. Remain the same

8. Do you sell organic dairy? (Yes, No)
 Approximately, what is the dollar volume of sales annually? _____ \$
 Over the next two years, the demand for organic dairy will:
 A. Increase _____ %
 B. Decrease _____ %
 C. Remain the same

II. Attitude Towards North Carolina Growers

9. Do you prefer to buy produce from North Carolina growers? (Yes, No) Why?
Interviewers: Buyers are asked to provide reasons on their own. Reasons A-H are listed only to provide a shortcut to note taking on your behalf. Circle all that are mentioned.

- A. Better quality
- B. Fresher
- C. More reliable
- D. Lower prices
- E. Longer shelf life
- F. It is possible to stock more perishable items
- G. Supports local agriculture community
- H. Help beginning farmers
- I. Other _____

Why? _____

10. What are the barriers to your purchasing more North Carolina produce?

Interviewers: Same directions as question #6 above.

- A. Appearance
- B. Shelf life
- C. Freshness
- D. Availability
- E. Consistency of supply
- F. Price
- G. Handling / Payment system
- H. Organic certified
- I. Other _____

11. Outside of the sixteen commodities, can you list others that you could sell and in what volumes?

Interviewers: Provide buyers with a list of the 16 commodities, request if sales figures are annual or seasonal, and include units of volume. (1 case = 24 heads of lettuce)

Commodity	Volume	Frequency

12. What is your payment policy when purchasing directly from North Carolina growers?
- A. At time of delivery or on the same day as delivery
 - B. Once a week
 - C. Once every other week
 - D. Once a month
 - E. Other _____

III. Source of Produce

13. How do you obtain most organic produce items? Include percent obtained.
- A. Direct request to growers _____ %
 - B. Growers contact us _____ %
 - C. Organic wholesalers / brokers _____ %
 - D. Mixed wholesalers / brokers _____ %
 - E. Other _____ %

14. On an annual basis, how many different organic growers and how many different wholesalers/brokers do you usually deal with?
- Growers _____
- Wholesalers/brokers _____
- A. Few (1-5)
 - B. Some (6-10)
 - C. Many (10+)

15. What are the main criteria in selecting a supplier?
 (Rate on a scale 1-5; 1 = Not important, 5 = Very important)

Interviewers: Provide visual aids.

- _____ Supplier dependability
- _____ Volume
- _____ Consistent product quality
- _____ Timing of availability
- _____ Price
- _____ Other _____

IV. Criteria for Selecting Produce

16. Generally, what are the most important quality characteristics when buying produce?
 (Rate on a scale 1-5; 1 = Not important, 5 = Very important)

Interviewers: Provide visual aids. Remind buyers we are asking about any and all produce, not just NC produce.

- _____ Consistent product quality
 - _____ Availability
 - _____ Price
 - _____ Handling/payment system
 - _____ Organic certified
 - _____ Other _____
-

V. Perception of Market for Organic Produce

17. Relative to conventional produce, prices paid for organic produce are generally:

Interviewers: Buyers give best estimate.

- A. Higher by _____%
- B. Lower by _____%
- C. The same

18. Do you perceive an increased demand for organic produce? Estimate the percent of annual increase. _____%

19. The demand for organic produce are (Consistent with, Independent of) the demands for conventional produce.

20. What limits your sales of organic produce?
(Rate on a scale 1-5; 1 = Not important, 5 = Very important)

Interviewers: Provide visual aids.

- _____ Insufficient demand
- _____ Hard to find / hard to maintain a regular supply
- _____ Higher price
- _____ Lesser quality
- _____ Consumer awareness

VI. Importance and Potential of Organic Produce

21. In the last two years, sales of organic produce have

- A. Increased % _____
- B. Decreased % _____
- C. Remained stable

22. In the next two years, the demand for organic produce will probably

- A. Increase substantially
- B. Increase slightly
- C. Remain stable
- D. Decrease

VII. Importance of Certification

23. Is the term “certified organic” important to you? (Yes, No)

Why? _____

24. Do you buy produce certified “transitional organic”? (Yes, No)
Why? _____

25. Do you require produce to be “certified” organically grown? (Yes, No)

VIII. Perception of Marketing Efforts

26. Do you advertise that you carry organic produce? (Yes, No)

If yes, what media do you use?

- A. Flyers
- B. *Newspaper*
- C. Radio
- D. TV
- E. Direct Mail
- F. Store Newsletter
- G. Other _____

27. Over the next two years, your advertising budget for organic produce will

- A. Increase
- B. Decrease
- C. Remain the same

CONSUMER ATTITUDES

I. Why Consumers Buy Organic

28. Why do consumers buy organic produce?

Interviewers: Provide visual aids. Circle all that are mentioned.

- _____ Appearance (Size, Shape, and Color)
- _____ Freshness
- _____ Flavor
- _____ Nutrition / Health
- _____ Support local economy
- _____ Support environmental ethics
- _____ Other _____

29. How often do you think the average customer shops for organic produce?

- A. 2 - 4 Times a week
- B. Once a week
- C. Once every other week
- D. Once a month
- E. Special occasions

30. Average purchase in dollars per trip _____ \$

II. Why Consumers Are Not Buying More Organic

31. What factors prohibit consumers from purchasing organic produce?

Interviewers: Provide visual aids. Circle all that are mentioned.

- Poor appearance
- Price
- Limited Selection
- Limited Quantity
- Irregular Quality
- Availability
- No prohibitions
- Other _____

32. Do you think consumers are aware of what “certified organic” means? (Yes, No)

33. How important is organic certification to your customers?

- A. It is only the main criteria for buying, they only buy certified products
- B. They want to know if the produce is certified but this doesn't affect their decision
- C. It is not important

34. Have you or do you intend to carry produce with an “ecolabel”? (Yes, No)

Interviewers: Define ecolabel as an alternative to certification that describes sustainable practices such as IPM, local, or low-input.

35. When an organic produce item is not available, what does the consumer most often do?

- A. Leaves without purchasing that item
- B. Purchases a similar organic item
- C. Purchases that same item grown conventionally
- D. Other _____

GENERAL COMMENTS

36. If the North Carolina produce is organic, how important is it that the produce is

- A. Identified as grown in North Carolina
- B. Identified as certified organic

37. How would you advise a North Carolina grower to improve his / her prospects for selling organic produce?

38. How can CFSA help you to buy more local organic produce?

39. Can you identify any educational needs for produce buyers?

Appendix B

**ORGANIC BULK FOODS QUESTIONNAIRE
RESPONDENT DATA**

Name of Company _____
Respondent _____ Position _____
Mailing Address _____
Telephone/Fax _____
E-mail _____

Attention: For survey purposes, bulk foods are categorized as peanuts/pecans, beans, lentils, soybeans, peas, grains, and feed grains. If respondent answers no to question 1, ask why, thank them, and end interview.

1. Would you buy bulk goods from North Carolina Growers? Why/ why not?

2. Do you buy organic peanuts or pecans?
 - a. What varieties? Peanuts _____ Pecans _____
 - b. In what quantity? Peanuts _____ Pecans _____
 - c. At what price? Peanuts _____ Pecans _____
 - d. What is the standard packaging unit size? Peanuts _____ Pecans _____
 - e. What issues should North Carolina growers be aware of in the organic Peanut and Pecan market?

3. Do you buy organic beans?(excluding soybeans and lentils)
 - a. What varieties? Variety #1 _____ Variety #2 _____
 - b. In what quantity? Variety #1 _____ Variety #2 _____
 - c. At what price? Variety #1 _____ Variety #2 _____
 - d. What is the standard packaging unit size? _____
 - e. What issues should North Carolina growers be aware of in the organic bean market?

4. Do you buy organic soybeans?
 - a. What varieties? Variety #1 _____ Variety #2 _____
 - b. In what quantity? Variety #1 _____ Variety #2 _____
 - c. At what price? Variety #1 _____ Variety #2 _____
 - d. What is the standard packaging unit size? _____
 - e. What issues should North Carolina growers be aware of in the organic soybean market?

5. Do you buy organic lentils?
 - a. What varieties? Variety #1 _____ Variety #2 _____
 - b. In what quantity? Variety #1 _____ Variety #2 _____
 - c. At what price? Variety #1 _____ Variety #2 _____
 - d. What is the standard packaging unit size? _____
 - e. What issues should North Carolina growers be aware of in the organic lentil bean market?

6. Do you buy organic peas?
 - a. What varieties? Variety #1 _____ Variety #2 _____
 - b. In what quantity? Variety #1 _____ Variety #2 _____
 - c. At what price? Variety #1 _____ Variety #2 _____
 - d. What is the standard packaging unit size? _____
 - e. What issues should North Carolina growers be aware of in the organic pea market?

7. Do you buy organic grains?
 - a. What varieties? Variety #1 _____ Variety #2 _____
 - b. In what quantity? Variety #1 _____ Variety #2 _____
 - c. At what price? Variety #1 _____ Variety #2 _____
 - d. What is the standard packaging unit size? _____
 - e. What issues should North Carolina growers be aware of in the organic grains market?

8. Do you buy organic feed grains?
 - a. What varieties? Variety #1 _____ Variety #2 _____
 - b. In what quantity? Variety #1 _____ Variety #2 _____
 - c. At what price? Variety #1 _____ Variety #2 _____
 - d. What is the standard packaging unit size? _____
 - e. What issues should North Carolina growers be aware of in the organic feed grains market?

9. Do you offer contracts to your growers? Please describe:

10. Do you offer training/scheduling to growers? Please describe:

11. Do you require organic certification?

12. Which organization's certificates do you accept? Do you accept CFSA?

13. What advice would you give to a North Carolina grower who is interested in selling bulk commodities to your company?

14. Who is the best person in your company for a North Carolina grower to contact?

15. Are there any other crops in the organic bulk goods category that you think North Carolina growers should consider? Why?

Appendix C

List of Retail Grocery Store Survey Participants

Individuals and stores are listed only if they gave us permission to identify them as a survey cooperator.

Weaver Street Market

David Dellea, Produce Manager
101 East Weaver St., Carrboro, NC 27510
919-929-0010

Wellspring-Raleigh

John Aubrey, Produce Manager
3540 Wade Ave., Raleigh, NC 27607
919-828-6032

Harmony Farms

Diane Maieli, Produce Manager
5653 Creedmoor Rd., Raleigh, NC 27612
919-782-0064

Doxey's Market

Pam Doxey, Owner
PO Box 460, Wrightsville Beach, NC 28482
910-256-9952

Tidal Creek Co-op

Chris Cuningham, Produce Manager
4406 Wrightsville Ave., Wilmington, NC 28403
910-799-2667

Wellspring, Durham

Leah Cook, Asst. Produce Mgr.
621 Broad St., Durham, NC 27705
919-286-2290

Durham Food Co-op

Briama Moiwai, Produce Manager
1101 W. Chapel Hill St., Durham, NC 27701
919-490-0929

Brendle's Natural Foods

Dennis Ring, Produce Manager
152 Stratford Commons CT., Winston Salem, NC 27103
336-774-8600

Fowler's Gourmet
Elizabeth Gronke, Produce Buyer
905 W. Main St., Durham, NC 27701
919-682-2555

Deep Roots Market
Judith Prizio, Produce Manager
3728 Spring Garden St., Greensboro, NC 27407
336-292-9216

Bare Essentials
Daniel Hanley, Produce Manager
273 Boone Heights Dr., Boone, NC 28607
828-262-5592

French Broad Food Co-op
Diane Nettles, Produce Buyer
90 Biltmore Ave., Asheville, NC 28806
828-255-7650

Friends of the Earth
Susan Johnson, Produce Buyer
114 Reynolda Village, Winston Salem, NC 27601
336-725-6781

Razzberries
Marna Young, Produce Manager
2194 Blowing Rock Road, Boone, NC 28607
828-265-2700

Hendersonville Co-op
John Rocchio, Purchasing Manager
715-B Old Spartanburg Rd, Hendersonville, NC 28792
828-693-0505

Earthfare 1
Bobby Sullivan, Produce Manager
66 Westgate Pkwy., Asheville NC
828-253-7656

Earthfare 2
Lory Walker, Manager
213 Oak St. Ext. Forest City, NC 28043
828-245-6578

Incredible Edibles
Linda Price, Owner
1111 South Lafayette St., Shelby, NC 28711
704-481-1635

Pittsboro General Store
Mimi Sharp, Owner
39 West St., Pittsboro, NC 27312
919-542-2432

Redleaf Market
Ken Carlson, Owner
14310 Hunter's Rd., Huntersville, NC 28078
704-947-8777

Talley's Green Grocer
Floyd Wrenn, Produce Manager
1408C East Blvd., Charlotte, NC 28203
704-334-9200

Wellspring-Chapel Hill
Ken Wilson, Produce Buyer
81 S. Elliot Rd., Chapel Hill, NC 27514
919-968-1983

The Home Economist 1
Adam Peltz, Produce Manager
361 Griffith St., Davidson, NC 28036
704-892-6191

The Home Economist 2
Dennis Owenby, Produce Manager
5410 East Independence Blvd., Charlotte NC 28212
Phone number unknown

Berrybrook Farm
Rebecca Morris, Produce Manager
1257 East Blvd., Charlotte NC 28203
704-334-6528

Healthy Harvest
Janet Godwin, Owner
Street Address & phone unknown

Willow Tree Market
Michael Nelson, Owner
549 W. King Street, Boone, NC 28607 phone number unknown

Appendix D

List of Wholesale Survey Participants

Individuals and companies are listed only if the company gave us permission to list them as a survey cooperator.

Albert's Organics

Rich Thompson, Information Systems Manager

P.O. Box 624

Bridgeport NJ 08014

609-241-9090 extension 136

Carolina Organic Growers

Mark Lewis, Manager

Box 11

570 Brevard Rd., Asheville NC 28806

828-251-1189

Wellspring Warehouse

Shawn Cousino, Team Leader

409 C Airport Blvd.

Morrisville, NC 27560

919-467-1602

Corganics

Dave Thomas, Buyer

292 Brookville Rd.

Statesville, NC 28687

704-871-8571

Appendix E

List of Field Crop (Bulk) Survey Participants

Individuals and companies are listed only if the company gave us permission to list them as a survey cooperator.

American Health/Nutri
Kenn Zimmerman
PO Box 56, Craigville, IN 46731
800-817-1281

Braswell Foods
Russ Powell
PO Box 669
Nashville, NC 27856
252-459-2143

Caudill Seed
Mike Cline
1402 West Main St.,
Louisville, KY 40203
502-583-4402

Community Mill & Bean
Mark Vorreuter
267 Route 89 South
Savannah, NY 13146
315-365-2664

Ciranda, Inc.
Joan Friese
431 2nd St. Suite 300
Hudson, WI 54016
715-386-1737

Great Eastern Sun / American Miso
Marquita Moore
92 Macintosh Rd.
Asheville, NC 28806
828-665-7790

Golden Harvest
Jim Sellers
310 Broad Ave.
Whigham, GA 31797
912-762-3233

Lindley Mills
Joe Lindley
7763 Lindley Mill Rd.
Graham, NC 27253
336-376-6190

Neshaminy Valley Distributors
Phil Margolis
5 Louise Dr.
Ivyland, PA 18974
215-443-5545

Once Again Nut Butters
Jeremy Thaler
12 S. State St., Nunda, NY 14517
716-468-2535

Repunzel Pure Organics / ASI
Eckhart Kiesel
122 Smith Rd., Kinderhook, NY 12106
800-626-5357

Tropical Fruit & Nut Co.
Carolyn Bennett
11517-A Cordage Street
Charlotte, NC 28217
704-588-0400

Walnut Acres
Carolyn Straub
Walnut Acres Rd.
Penn's Creek, PA 17862
717-837-0601

Appendix F

Buyers and Markets for Medicinal Herbs. Information is believed to be current and accurate as of April 1999 but herb markets change rapidly so producers should attempt to verify all information listed.

Cascade Herbal, Inc.

Dr. Michael Boumil
940 Newport SW, PO box 1807
Bandon, OR 97411
Phone (541) 347-5403
Fax: (541) 347-9222

Minimum quantities accepted: 100 lbs. Echinacea (root/tops): 25 lbs. Goldenseal (root): 100 Lbs. Hawthorn Berry, 100 lbs. Saw Palmetto (Whole berry) 50 lbs. Ginkgo (Leaf) 50 Lbs. Milk Thistle (seed) 100 lbs. (Hops) Strobilies, 50 lbs. Calendula:(flowers); Capsicum – Pepper, Ammi Visnaga (Khella -seed); Oplopanax horrium (devils club); Selenicereus grandiflorus (night blooming cereus cactus): 200 lbs.; Glycyrriniza glabra; 100 lbs. Passiflora incarnata. Many other species purchased. All must be certified organic or wildcrafted.

Celestial Seasonings, Inc.

Kay Wright Purchasing
4600 Sleepytime Dr.
Boulder, CO 80301-3292
Phone: (303) 530-5300
Fax: (303) 581-1209
Email: kwright@ctea.com

Contract for grower guidelines

Frontier National Products Coop

Cole Daily
33021 78th Street,
Norway, IA 52318
Phone: (319) 227-7996 ext. 1252
Fax: (319) 227-7966

McZand Herbal, Inc.

Greg Huckabee
P.O. Box 2039
Boulder, CO 80306
Phone: (303) 786-8558
Fax (303) 786-9435
Email: GREGH@ZAND.COM

Minimum quantities accepted: 100 Lbs. Echinacea angustifolia (root)-Red Clover (blossoms); Chamomile (flowers); Goldenseal (root)-Saw Palmetto (berries); Ginkgo (leaf); Valerian (root); Ginseng (root); Prefer certified organic. All dried / whole.

Ministar International, Inc.

Nickols Huang
21118 Commerce Pointe Dr.
City of Industry, CA 91789
Phone: (800) 886-5415
Fax: (909) 5598-5733
Email: ministar@vividnet.com

Minimum quantity accepted is 100 kgs. Saw Palmetto Berry (2% F.A.); Goldenseal root (1% F.A.); St. Johns wort (2% F.A.); Feverfew (1% F.A.); Echinacea purpurea (1% F.A.); Dandelion (1% F.A.); Nettle leaf (1 % F.A.); Black Cohosh (1% F.A.). All powder or powder-extract.

Monterey Bay Spice Co.

5905 Highway 9
Felton, CA 95018
Phone: (408) 335-5575
Fax: (408) 335-5498

Wholesale distributor of herbs, spices, oils, and 30% organic.

Natures Apothecary

Darrin C. Duber-Smith
P.O. Box 17970
Boulder, CO 80308
Phone: (800)999-7422
www.naturesapothecary.com

Raw Materials, fresh plant extracts, 157 single herbs.

Northwest Botanicals, Inc.

Richard Alan Miller
Agricultural Consultant and Broker
493 Coutant Lane
Grants Pass, OR 97527-6104
Phone: (541) 476-5588
Fax: (541) 476-1823
Email: drram@magick.net,
www.nw.net/ram.

Minimum quantities accepted: 500 lbs. Will broker most alternative herb and spice crops grown in North America, marketing to include the foods, drugs, cosmetics and dried floral industries. Some essential oils (50 gal. drums); and all dried mushrooms (10 lb. minimum). COG and/or Forest Certification helpful for better pricing and smaller sales. Some cottage industry development and marketing. Technical information books, business plans (including farm plans), and other agricultural consulting services available.

Pacific Botanicals

Lawrence Smith or Mark Wheeler
4350 Fish Hatchery Rd.

Grants Pass, OR 97527

Phone (541) 479-7777

Fax: (541) 479-5271

Eyebright (plant), Goldenseal (root / whole); Hops (strobiles), Gentiana lutea (root); Fennel (seed); Ginkgo (leaf); Rosemary (leaf); Thyme (leaf); Wormwood (leaf). Grown in soil without residues of DDT, DDE, Toluene or Dieldrin. Dried preferred; certified organic or wildcrafted.

ATTENTION HERB GROWERS

The 4th Annual Herb Business Winter Getaway Conference, January 27-31, 1999 at the Palm Coast Resort, Palm Coast Florida. Sponsored by the Herb Growing & Marketing Network with Rosemary House, Inc. Please contact Maureen Rogers, THGMN, P.O. Box 245, Silver Springs, PA, 17575, (717) 393-3295; Fax (717) 393-9161.

St. Johns Herb Garden, Inc.

Sydney Vallentyne

7711 Hillmeade Rd.

Bowie, MD 20720

Phone: (301) 262-5302

Fax: (301) 262-2498

www.st-johns.com

Certified organic or wildcrafted. Small quantities accepted. Contact for grower and harvesting guidelines. Dried materials accepted only. Organic essential oils accepted.

Starwest Botanicals, Inc.

Bonnie Sadkowski, Buyer

11253 Trade Center Dr.

Rancho Cordova, CA 95742

Phone: (916) 638-8100 ext. 140

Fax: (916) 638-8293

Email: swherb@aol.com

Minimum quantity accepted: 100 lbs. Burdock root (whole, c/s, powdered); Catnip leaf and flower (whole, cut/shifted). Cayenne Pepper (40HU, powdered comfrey root (whole, c/s). Dandelion root whole, c/s; Paprika (powdered); Peppermint leaf (c/s, powdered); Valerian root (whole, c/s, powdered). Clean, dried, preferably certified organic. Also buy other organic dried culinaries and medicinals.

The Whole Herb Co.

Jim Thrower, Buyer

19800 8th St. E., P.O. Box 1203

Sonoma, CA 95476

Phone: (707) 935-1077

Fax: (707) 935-3447

Jim@Whole HerbCompany.com

Minimum quantities accepted: 500 lbs. Echinacea (whole root), 2,000 lbs. Valerian (whole root). Clean, free from dirt, packed in clean, standard weights.

Turtleisland Herbs, Inc.

Kristen Myers, Herbalist
2835 Wilderness Place, Suite 400
Boulder, CO 80301
Phone: (303) 442-2215
Fax: (303) 4421-7722
Email: Island@earthnet.net

Certified organic or ethically wildcrafted. Contact for grower guidelines.

Unitea Herbs

Rob Wilcock
P.O. Box 8005 #318
Boulder, CO 80306
Phone: (800) UNITEAS
Fax: (303) 442-1316
Email: brigitle@indra.com

Use mostly certified organic, but interested in all fresh quality herbs. Send for list of what they use. Dry cut & sifted.

