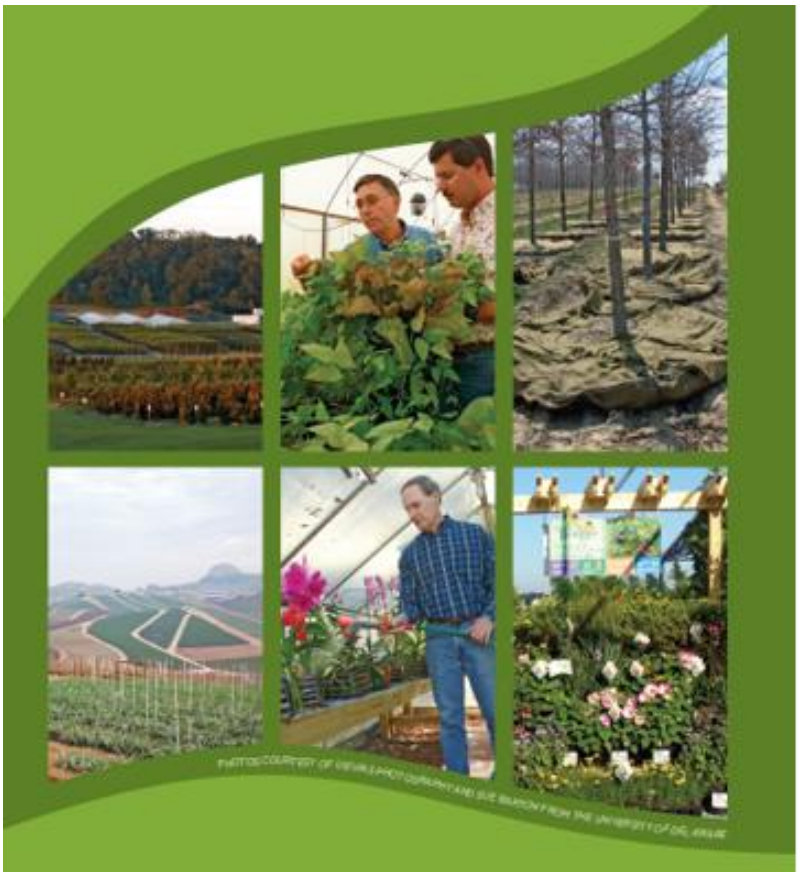
Southern Cooperative Series Bulletin

# Production and Marketing Practices and Trade Flows in the United States *Green Industry*, 2013



Southern Cooperative Series Bulletin #420
May 26, 2015
www.greenindustryresearch.org

Alan W. Hodges and Hayk Khachatryan, University of Florida
Charles R. Hall and Marco A. Palma, Texas A&M University

Contact: University of Florida Agricultural Experiment Station
PO Box 110240, Gainesville, Florida, Tel 352-294-7674
http://www.fred.ifas.ufl.edu/economic-impact-analysis/publications.shtml

ISBN: 1-58161-420-9

## Acknowledgements

This report is one in a series of *Southern Cooperative Series Bulletins* published under the auspices of the Southern Association of Agricultural Experiment Station Directors (SAAESD).

The *National Green Industry Survey* is conducted by the *Green Industry Research Consortium* of horticulturists and agricultural economists at U.S. land grant universities, organized as the S-1051 Multi-state project under the USDA-National Institute for Food and Agriculture (NIFA). Active participants in the project included representatives from Auburn University (Alabama), University of Arizona, University of Delaware, University of Florida, University of Georgia, Purdue University (Indiana), University of Kentucky, Louisiana State University, Michigan State University, University of Minnesota, Mississippi State University, Rutgers University (New Jersey), North Carolina State University, Ohio State University, and Texas A&M University. The Administrative Advisor of the project is Dr. Craig Nessler, Texas A&M University, and the USDA-NIFA Representative is Dr. William J. Hoffman. A complete list of consortium participants, project objectives and resources is available at www.greenindustryresearch.org.

This project was supported by a grant from the Horticultural Research Institute (HRI), and cost sharing provided by the University of Florida and Texas A&M University. Survey data entry services were provided by the Florida Survey Research Center.

# Table of Contents

## Abstract

This report presents information on production and marketing practices and trade flows for U.S. ornamental plant grower and dealer firms, based on a national survey conducted in mid-2014 to collect information on business practices and operating results for 2013 or FY 2013-14. The survey included questions about irrigation and pest management practices, employment, annual sales, product types, market outlets, selling methods, advertising expenditures, and product distribution by state or country. The 2014 *National Green Industry Survey* was the sixth such survey conducted by the *Green Industry Research Consortium* since 1989. In this edition, and for the first time, the survey targeted horticultural retailers as well as wholesale growers, with new questions added to the survey regarding retail marketing practices.

Lists of grower and plant dealer firms for the survey were assembled from the state agencies responsible for phytosanitary inspection and licensing of plant businesses in each state. A combined total of over 110,000 firms were compiled, from which a random sample of 32,000 firms were selected for the survey, with 15,000 distributed via mail and 17,000 via email (Internet). Each firm was initially contacted by the investigators to introduce the survey, then two mailings of the survey instrument were sent, followed by reminder postcards (messages).

A total of 2,657 usable questionnaires were returned for the survey, including 1,712 respondents by mail and 945 by email, representing an overall response rate of 8 percent. Responses were received from all 50 states, with the largest number from the southeast and northeast U.S. regions. Most results are reported by state and region. Some results are reported separately for grower (wholesaler) firms and plant dealer (retailer) firms.

Respondent firms reported total annual sales of nearly $4 billion, and total employment of 38,657 fulltime and part-time or seasonal jobs. The average number of employees per firm was 18.4, the average annual sales per firm was $1.83 million, and the average annual sales per employee was $102,355.

The distribution of total reported sales was 57% through wholesale markets and 43% at retail to final consumers. Among wholesale market channels, landscape firms were the largest outlet, representing 28% of sales, followed by re-wholesalers (20%), home centers (20%), single location garden centers (17%), mass merchandisers (10%), and multiple location garden centers (5%).

The top five specific plant categories as a share of total sales were bedding plants-flowering annuals (18%), deciduous shade and flowering trees (9%), herbaceous perennials (9%), deciduous shrubs (7%), and bedding plants-vegetables/fruits/herbs (6%). Native plants represented 17 percent of total sales.

Containerized plants accounted for 73 percent of total sales, followed by balled-burlapped (8%), bare root plant material (7%), in-ground containers (2%), and other product forms (9%).

About one-fourth (26%) of sales transactions involved negotiating price and terms, which was decreased from the previous survey (37%). Sales for product contracted in advance comprised 17% of total sales, which was increased slightly since the previous survey. Repeat customers represented 78% of sales, and brokerage for other growers represented 8% of total sales. Sales transacted in-person represented 63 percent of total sales, followed by telephone (29%), and a relatively small share via the Internet (4.5%), trade shows (2.0%), and mail order (1.7%). Since the previous survey, sales in-person increase, and sales by telephone decreased, while sales via the Internet were unchanged.

Advertising expenditures represented about 4% of total sales for Green Industry firms in 2013.The largest category of advertising media expenditures was the Internet, representing 19% of total expenditures, followed by trade journals (15%), miscellaneous other unspecified advertising media (14%), radio/TV (12%), social media (12%), Yellow Pages (9%), and trade shows (6%), print/CD catalogs (5%), newsletters (4%), gardening publications (3%), and billboards (2%). Surprisingly, the large share of expenditures for Internet advertising does not appear to have resulted in significantly increased sales through this medium according to respondents. Attendance at trade shows continues to decline, both with and without an exhibit.

In terms of trade flows, the Appalachian region had the largest share of total sales to other regions (36%), followed by the Mountain (25%), Southeast (19%), Southcentral (12%), Pacific (11%), and Northeast (10%) regions. The Midwest and Great Plains regions had less than 3% of total sales to other regions. International exports represented only 1.0% of total sales, down from 3.7% in 2008.

The predominant source of irrigation water was groundwater wells, used by 55% of the surveyed firms in 2013, followed by city water (27%), natural surface water (23%), recaptured (10%) and reclaimed (4%) water sources. The share of firms using city water was increased from the previous survey. The most common irrigation application method in was overhead irrigation, used by 53% of firms, followed by drip irrigation (37%), sub-irrigation such as ebb/flood systems (5%), and other methods, including hand watering (20%). Although drip irrigation typically has higher water use efficiency, the share of firms using this method has not increased.

The most commonly used Integrated Pest Management (IPM) practice in the Green Industry in 2013 was “remove infested plants”, reported by 72% of firms, followed by “cultivation and hand weeding” (62%), “spot treatment with pesticides” (53%), “elevate or space plants for air circulation” (47%), “inspect incoming stock” (46%), and “alternate pesticides to avoid chemical resistance” (42%). Many of IPM practices were reported by a slightly lower percentage of respondents than previously.

Among factors that potentially determine prices for Green Industry products, cost of production, was rated as important or very important by 87% of respondents, followed by grade of plants (83%), market demand (79%), product uniqueness (76%), other growers' prices (66%), last year's prices (56%), and inventory levels (54%). For factors potentially affecting the geographic range of business conducted by Green Industry firms, transportation was rated as important/very important by 69% of respondents, followed by plant offerings (71%), production (67%), personnel (56%), and marketing (50%), while debt capital and equity capital were generally rated as not important. Factors most affecting the overall health of the Green Industry included market demand and weather uncertainty, rated as important/very important by 87% and 78% of respondents, respectively, followed by own managerial expertise (68%), ability to hire competent hourly employees (53%) and labor (57%), water supply (46%), and competition/price undercutting (53%). Factors that were generally regarded as not important included ability to hire competent management, debt capital and equity capital.

# Production and Marketing Practices and Trade Flows in the United States *Green Industry*, 2013

Alan W. Hodges, PhD, University of Florida, awhodges@ufl.edu
Hayk Khachatryan, PhD, University of Florida, hayk@ufl.edu
Marco A. Palma, PhD, Texas A&M University, mapalma@tamu.edu
Charles R. Hall, PhD, Texas A&M University, c-hall@tamu.edu

## Introduction

The environmental horticulture or *green industry* includes a variety of production, allied supply, product distribution and service activities for environmental or ornamental and landscape plants. Producers are growers of floriculture and nursery crops. Wholesale distribution firms include importers, brokers, re-wholesalers, and transporters. Horticultural service firms provide landscape and urban forestry services for design, installation, and maintenance of landscape or interiorscape plants. Retailers of ornamental plants include independent garden centers, florists, home improvement centers, mass merchandisers and other chain stores.

Floriculture crops include bedding plants (flowering annuals), perennials, potted flowering plants, foliage plants, cut cultivated greens, and cut flowers. These plants are generally herbaceous and have prominent floral features, and are used primarily for indoor or patio decoration. They are grown in flats, trays, pots, or hanging baskets, usually inside a controlled greenhouse environment. Market outlets for floriculture crops include florists, garden centers, mass merchandisers, supermarkets, chain stores, discount stores, home improvement centers, hardware stores, landscape contractors, and re-wholesalers, as well as informal outlets at farmers markets, flea markets, and street vendors. The demand for floral crops, especially cut flowers, is highly seasonal, with sales peaking from February through May and in the fall and Thanksgiving and Christmas holiday season. Sales of cut flowers peak during holidays such as Valentine's Day and Mother's Day.

Nursery crops include woody perennial trees and shrubs, either deciduous or evergreen, fruit and nut trees, vines, and ground covers that are used for outdoor landscaping. Markets for nursery crops include homeowners, developers, public utilities, golf courses, resorts, commercial establishment and government agencies managing public parks, street and highway rights of way. In addition, sod farms are specialized nurseries that produce turfgrass varieties for new residential or commercial developments, re-landscaping existing developments, sports turf facilities such as athletic fields and golf courses, or other commercial applications. Demand for nursery crops tends to coincide with the planting and gardening seasons in the spring and fall.

Technical knowledge of plants and pests is important for nursery management, although many of the everyday tasks are routine and do not require specialized labor. Nursery and greenhouse operations can be very sophisticated, with automated systems for irrigation, fertilization, ventilation, and lighting driven by sensors. However, automation of other tasks has generally proven to be difficult. Innovations for marketing, such as custom labeling, bar codes, scanners, and electronic data interchange between suppliers and buyers, are now used by many producers.

Wholesaling of green industry products is usually handled by salespersons who have established relations with large buyers. Marketing programs trade shows, advertising in trade publications, catalogs, Internet and direct mail. Close planning with large buyers (referred to as partnering) is required to secure long-term markets and to ensure that the right product mix is produced.

In recent years, there has been considerable consolidation in the green industry. Big box stores and mass merchants have captured over half of the amount Americans spend a year on lawn and garden plants. The rise of large, nationwide plant retailers like home centers and mass merchandisers has created a marketing opportunity for large growers who can supply the large volumes these customers require. Some nursery firms have grown rapidly through acquisition during the past decade, largely to service these big customers. Independent garden centers, retail nurseries, and smaller landscape firms may be supplied by both large and small growers.

Competitive rivalry in the green industry is intensifying, especially at the retail level where the economies of scale and scope give a considerable advantage to large-scale operations. The mass merchandising stores that sell truckloads of plants are continuing to ramp up their presence in the lawn and gardening industry. To overcome the high in-store shrinkage of plants, many large retailers now have “pay-by-scan” compensation systems, much like a consignment system, where vendors are paid only for plants that actually sell, putting the responsibility on them to maintain product in the store. Large retail chain stores have exposed many more consumers to nursery and floral products, thereby increasing overall industry sales.

Independent garden centers do not have the volume to compete effectively on price, so they attempt to compete with better selection and more value-added services, which are especially attractive to new gardeners. They are introducing their own branded plants sold under house names or nationally available labels. Some garden centers have added amenities such as cafes or coffee bars, along with free workshops on landscaping and assistance with diagnosing plant problems.

Consolidation has also occurred within the production sector, with the number of growers declining in recent years. The stresses of supplying mass marketers or competing with them as an independent grower-retailer are taking their toll. The capitalization requirements, increased input costs (e.g. fuel), reduced margins, increased demands from buyers, and the market power associated with fewer numbers of buyers have all created intense market pressures and heightened competitive rivalry among larger producers. The struggle to remain competitive in a viable niche for smaller producers can be equally trying in markets being inundated by competing chains.

The green industry has been characterized with unprecedented growth, innovation, and change over the last three decades, however, slowing growth in demand and tighter margins point to a maturing market. In the next decade Green industry firms will need a progressive mindset, willingness to strengthen existing or develop new core competencies, and innovation to ensure profitability.

# Methods

The 2014 *National Green Industry Survey* gathered information on business practices and operating results for calendar year 2013 or fiscal year 2013-14. Information collected in this survey included annual sales, fulltime and part-time employment, plant types produced, native plants, product forms, market distribution channels, interstate and international trade flows of finished products and propagation materials, selling methods, advertising forms, irrigation water sources and application methods, integrated pest management (IPM) practices, year of business establishment, and factors affecting business growth and pricing. All information collected pertained to business practices and operating results for calendar year 2013 or fiscal year 2013-14. Questions in the survey asked respondents to indicate the percentage share of the total activity for each specific item, with all items to sum to 100 percent, to indicate items on checklists, provide Yes/No answers, fill-in open-ended blanks, or rate factors on a 4 point scale. A copy of the mail survey questionnaire is provided in the Appendix. The questionnaire and survey protocol were approved by the University of Florida Institutional Review Board for compliance with ethical standards for human subjects research.

This study represented the sixth national survey conducted by the *Green Industry Research Consortium*, following previous surveys in 1989, 1994, 1999, 2004, and 2009. The content of the survey has remained very similar over time, in order to provide consistency in time-series data, but has evolved in response to changes in the industry. For example, questions about market channels have been revised to capture sales to mass merchandise chain stores, home centers and re-wholesalers. New questions were added to the survey in 2004 to address water use and sources of irrigation water, sales of native plants, and integrated pest management (IPM) practices. The 2014 survey targeted plant dealer firms as well as growers for the first time, with new questions added regarding retail marketing practices.

For the 2014 survey, a list of over 110,000 grower and plant dealers firms in the U.S. was developed. The list contained information on company name, contact person, mailing address, and in some cases telephone numbers, email addresses, and type of business (grower or dealer). The listings for each state were obtained from members of the *National Plant Health Board*, an organization representing the plant health regulatory agencies in each state, which in most cases is the Department of Agriculture or its equivalent. All commercial growers and dealers of live plants are required to be registered and annually certified for compliance with phytosanitary regulations, so these lists of plant growers can be considered exhaustive to the extent of force of law. Some states make their lists of firms available on a website, while others provide it upon request. Usable lists of certified nurseries and plant dealers were obtained from all states except Alaska, Montana, and New Mexico; for these states, lists of firms were obtained from the *InfoSource USA* database. After screening to eliminate duplicate entries and firms no longer in business, the effective population had over 104,000 firms, as summarized in Table 1. A total of 32,000 firms were targeted for the survey, including 15,000 grower or grower/dealer firms randomly selected to receive the questionnaire mailed via the U.S. Postal Service, and all 17,000 firms with email addresses that received the survey via email (Internet), as shown in Table 1. Firms to be surveyed via email were removed from the population considered for the mail survey to avoid duplication.

The surveys were distributed during July-August, 2014. Following best practices for survey research, an introductory letter was first sent to selected firms to explain the purpose and benefits of the project, and all printed survey materials contained the logos of the sponsoring organizations to enhance the credibility and legitimacy of the survey (Dillman et al, 2008). Two mailings of the survey questionnaire were sent to firms selected for the mail survey, along with postage-paid return envelopes. Reminder postcards were mailed to respondents about one week after each survey mailing. Mailed questionnaires were imprinted with a code number matched to the mailing list, in order to identify respondents for quality control purposes. Completed surveys were returned to the University of Florida for data entry and analysis.

The online version of the survey was implemented at the same time as the mail survey and followed the same general approach. The *SurveyMonkey* web software (SurveyMonkey.com) was used to send batch email invitations, record survey responses in security-encrypted form, and track respondents. Three invitations to participate in the survey were made in July and August 2014, with the second and third email invitations sent only to those firms that had not previously responded. Firms were invited to participate in the online survey by clicking a link in the email message directing them to the survey website. Respondents were then explicitly asked for consent to participate in the survey, and were given the option to decline or "opt-out", as required by laws governing electronic communications. Consenting respondents were asked a qualifying question: "Was your company actively involved in producing and marketing ornamental plants last year (2013)?" Respondents answering this question affirmatively were then directed to proceed with the survey, while those answering negatively were thanked and the survey was terminated. It should be noted that the online version of the questionnaire and emailed letters of invitation closely matched the content of the printed/mailed surveys, except for the initial qualifying question, and some additional questions on retail marketing practices, so the results are comparable.

A total of 32,000 firms were contacted for the survey by both mail and email (Internet) methods. Valid responses were received from 2,657 firms, including 1,712 (64%) from the mail survey and 945 (36%) from the email survey (Table 1). A total of 299 or 2.0 percent of mailed surveys were returned as undeliverable, and 958 email addresses were considered undeliverable. In addition, 377 firms refused to participate ("opted-out") in the email survey. After deducting the undeliverable and non-compliant firms, the overall response rate for the survey was about 8 percent. Across firm types, 483 (18%) respondents were growers only, i.e. reported only wholesale sales, 721 (27%) were plant dealers reporting only retail sales, 817 (31%) were grower/dealers with a mix of wholesale and retail sales, and 636 (24%) were of unknown type. In some cases, survey results are reported separately for grower firms and plant dealer firms, as well as all responding firms.

The survey data were analyzed for individual states and aggregated across eight broad physiographic regions, as shown in Figure 1. Regionally, the number of survey respondents was highest from the Southeast (709), followed by Northeast (602), Midwest (461), Appalachian (297), Pacific (246), Southcentral (176), Great Plains (85) and Mountain (81). Individual states with the highest number of respondents were Florida (440), Pennsylvania (231), New York (187), Georgia (141), North Carolina (134), California (121), and Texas (116). In nine states with less

than 10 respondents (ND, MT, NV, UT, NH, AK, HI, AR, OK), the results may be less reliable. Overall, 85 percent of respondents reported the key information on annual sales. The key information on number of employees and annual sales was reported by 79 percent and 81 percent of respondents, respectively.

The survey data were coded and entered into worksheets for tabulation and analysis. Annual sales for each firm were estimated at the midpoint or average of the sales range indicated, unless the actual sales were specified (Table 2). Sales for each product type, market channel, etc. within each firm were estimated from the annual sales, together with the percentage breakdown reported, so that results represent sales-weighted averages.

**Figure 1.** Map of U.S. regions for analysis of the Green Industry

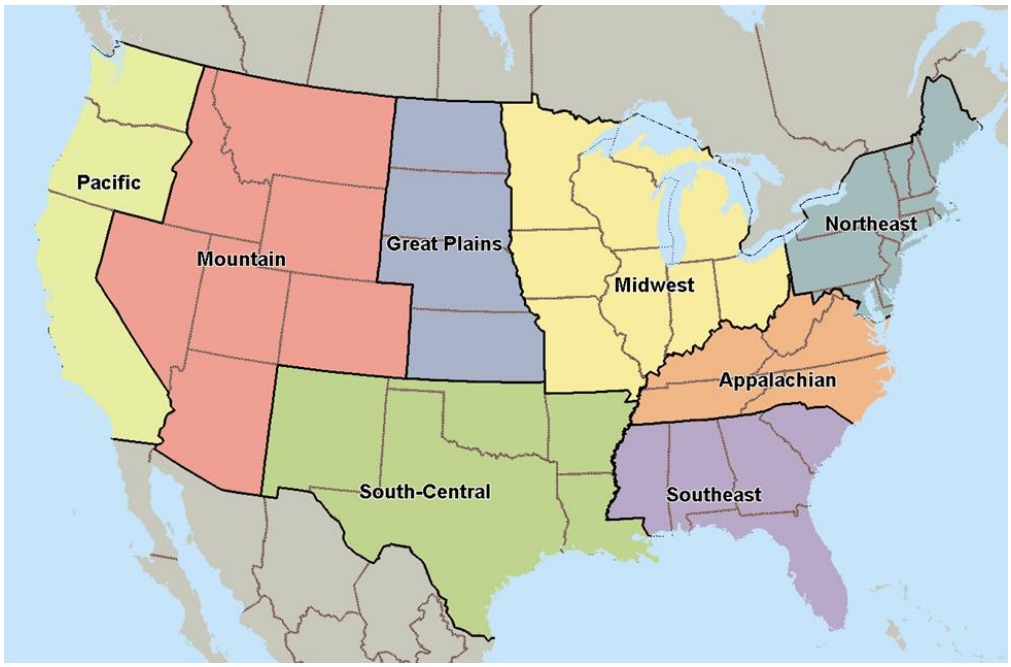


**Table 1.** Green industry business population and number of survey respondents, by region, state, survey group and firm type

| Region, State | Effective Population of Firms | | | Total Number of Respondents | Respondents by Survey Group | | Respondents by Firm Type | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Growers | Dealers | Total | | Internet | Mail | Grower only | Dealer only | Grower and Dealer | Type NA |
| **Appalachian** | **3,141** | **4,718** | **7,859** | **297** | **67** | **230** | **75** | **54** | **125** | **43** |
| KY | 392 | 538 | 930 | 42 | 22 | 20 | 7 | 7 | 19 | 9 |
| NC | 1,401 | 2,610 | 4,011 | 134 | 2 | 132 | 36 | 23 | 64 | 11 |
| TN | 912 | 1,273 | 2,185 | 78 | 40 | 38 | 18 | 13 | 27 | 20 |
| VA | 288 | 14 | 302 | 28 | 2 | 26 | 13 | 4 | 9 | 2 |
| WV | 147 | 284 | 431 | 15 | 1 | 14 | 1 | 7 | 6 | 1 |
| **Great Plains** | **1,052** | **2,554** | **3,605** | **85** | **40** | **45** | **2** | **33** | **24** | **26** |
| KS | 430 | 1,325 | 1,755 | 25 | 1 | 24 | 2 | 12 | 8 | 3 |
| ND | 64 | 121 | 185 | 3 | 3 | | | 2 | | 1 |
| NE | 441 | 820 | 1,261 | 48 | 35 | 13 | | 16 | 12 | 20 |
| SD | 116 | 288 | 404 | 9 | 1 | 8 | | 3 | 4 | 2 |
| **Midwest** | **5,649** | **10,256** | **15,906** | **461** | **144** | **317** | **60** | **162** | **134** | **105** |
| IA | 453 | 1,006 | 1,459 | 24 | | 24 | | 11 | 11 | 2 |
| IL | 661 | 566 | 1,227 | 55 | 2 | 53 | 13 | 14 | 21 | 7 |
| IN | 422 | 1,686 | 2,108 | 89 | 89 | | 2 | 29 | 12 | 46 |
| MI | 1,279 | 3,832 | 5,111 | 89 | | 89 | 12 | 34 | 31 | 12 |
| MN | 836 | 802 | 1,638 | 48 | | 48 | 7 | 18 | 16 | 7 |
| MO | 836 | 1,736 | 2,572 | 31 | 1 | 30 | 5 | 10 | 10 | 6 |
| OH | 717 | 41 | 758 | 74 | 1 | 73 | 20 | 26 | 22 | 6 |
| WI | 445 | 587 | 1,033 | 51 | 51 | | 1 | 20 | 11 | 19 |
| **Mountain** | **3,661** | **8,798** | **12,458** | **81** | **12** | **69** | **16** | **21** | **27** | **17** |
| AZ | 92 | 8 | 100 | 6 | | 6 | 3 | | 3 | |
| CO | 412 | 1,792 | 2,204 | 22 | 1 | 21 | 5 | 5 | 10 | 2 |
| ID | 359 | 1,386 | 1,745 | 23 | 1 | 22 | 6 | 7 | 5 | 5 |
| MT | 31 | 3 | 34 | 4 | | 4 | | 2 | 2 | |
| NV | 2,559 | 5,107 | 7,666 | 6 | | 6 | 1 | 1 | 2 | 2 |
| UT | 206 | 502 | 708 | 19 | 10 | 9 | 1 | 5 | 5 | 8 |
| WY | 1 | 0 | 1 | 1 | | 1 | | 1 | | |
| **Northeast** | **5,892** | **9,338** | **15,230** | **602** | **126** | **476** | **85** | **178** | **232** | **107** |
| CT | 244 | 55 | 299 | 16 | | 16 | 4 | 3 | 6 | 3 |
| DE | 163 | 166 | 329 | 16 | 1 | 15 | 2 | 5 | 6 | 3 |
| MA | 250 | 629 | 879 | 18 | 2 | 16 | 1 | 6 | 8 | 3 |
| MD | 370 | 1,249 | 1,619 | 24 | | 24 | 6 | 7 | 11 | |
| ME | 678 | 135 | 813 | 27 | 1 | 26 | 1 | 10 | 13 | 3 |
| NH | 6 | 26 | 32 | 1 | | 1 | | | 1 | |
| NJ | 759 | 700 | 1,459 | 61 | 2 | 59 | 22 | 10 | 22 | 7 |
| NY | 116 | 52 | 168 | 187 | 99 | 88 | 9 | 70 | 56 | 52 |
| PA | 2,904 | 5,791 | 8,695 | 231 | | 231 | 36 | 61 | 103 | 31 |
| RI | 110 | 278 | 388 | 8 | 8 | | 3 | 2 | 2 | 1 |
| VT | 291 | 257 | 549 | 13 | 13 | | 1 | 4 | 4 | 4 |
| **Pacific** | **3,200** | **10,844** | **14,044** | **246** | **126** | **120** | **36** | **66** | **65** | **79** |
| AK | 46 | 7 | 53 | 1 | 1 | | | | 1 | |
| CA | 2,467 | 8,331 | 10,798 | 121 | 1 | 120 | 31 | 28 | 46 | 16 |
| HI | 157 | 2 | 159 | 5 | 5 | | 2 | | 2 | 1 |
| OR | 196 | 1,832 | 2,028 | 54 | 54 | | 1 | 17 | 8 | 28 |
| WA | 334 | 673 | 1,007 | 65 | 65 | | 2 | 21 | 8 | 34 |
| **Southcentral** | **2,681** | **14,533** | **17,214** | **176** | **6** | **170** | **43** | **45** | **65** | **23** |
| AR | 73 | 40 | 113 | 4 | | 4 | | 1 | 3 | |
| LA | 526 | 136 | 662 | 37 | | 37 | 17 | 8 | 6 | 6 |
| NM | 119 | 696 | 815 | 10 | | 10 | | 4 | 6 | |
| OK | 135 | 280 | 416 | 9 | 5 | 4 | 1 | 1 | 2 | 5 |
| TX | 1,828 | 13,381 | 15,209 | 116 | 1 | 115 | 25 | 31 | 48 | 12 |
| **Southeast** | **10,471** | **7,460** | **17,931** | **709** | **424** | **285** | **166** | **162** | **145** | **236** |
| AL | 601 | 46 | 647 | 31 | | 31 | 11 | 3 | 8 | 9 |
| FL | 7,277 | 2,383 | 9,660 | 440 | 206 | 234 | 131 | 88 | 96 | 125 |
| GA | 1,538 | 3,306 | 4,844 | 141 | 140 | 1 | 12 | 46 | 16 | 67 |
| MS | 439 | 1,033 | 1,471 | 28 | 9 | 19 | 7 | 7 | 6 | 8 |
| SC | 617 | 692 | 1,309 | 69 | 69 | | 5 | 18 | 19 | 27 |
| **Grand Total** | **35,745** | **68,502** | **104,247** | **2,657** | **945** | **1,712** | **483** | **721** | **817** | **636** |

**Table 2.** Ranges for annual sales categories reported in the survey, and values used to estimate sales

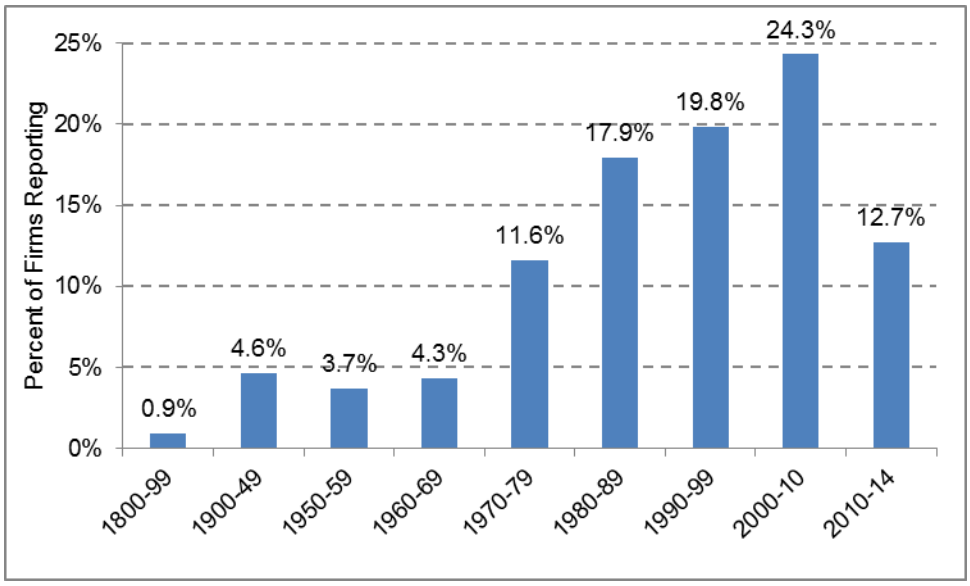
| Sales Range | Estimated Value |
|---|---|
| Less than $249,999 | $125,000 |
| $250,000 to $499,999 | $375,000 |
| $500,000 to $999,999 | $750,000 |
| $1,000,000 to $1,999,999 | $1,500,000 |
| $2,000,000 to $2,999,999 | $2,500,000 |
| $3,000,000 to $3,999,999 | $3,500,000 |
| $4,000,000 to $4,999,999 | $4,500,000 |
| $5,000,000 to $9,999,999 | $7,500,000 |
| $10,000,000 to $14,999,999 | $12,500,000 |
| $15,000,000 to $19,999,999 | $17,500,000 |
| $20,000,000 to $29,999,999 | $25,000,000 |
| $30,000,000 to $39,999,999 | $35,000,000 |
| $40,000,000 to $49,999,999 | $45,000,000 |
| $50,000,000 or more | $50,000,000 |

# Results

## Period Established

The distribution of surveyed firms by decade of establishment is shown in Figure 2. Nearly one quarter (24%) of firms were established during 2000-10, while nearly 20 percent were established during the 1990's, 18 percent during the 1980's and 12 percent during the 1970's, with smaller shares in prior decades. This pattern reflects the turnover of firms in the industry, with progressively fewer firms surviving from earlier periods. Cumulatively, about 14 percent of firms have been in existence since the 1960's, including about one percent since the 1800's. Although the percentage of firms established during the recent period of 2010-14 (13%) is about half of that for the previous decade, it reflects less than half of the length of time, suggesting that the rate of new business formation has remained fairly constant. Based on other sources, it is well accepted that a substantial number of firms exited the industry during the recession of 2008-09 and for a period several years after.

**Figure 2.** Distribution of surveyed U.S. Green Industry firms by decade established




## Annual Sales

Annual sales for 2013 reported by 2,163 survey respondents totaled $3.957 billion (Bn), and averaged $1.83 million (Mn) per firm (Table 3). Sales through wholesale market channels totaled $2.136 Bn, and averaged $1.64 Mn per firm, while sales at retail totaled $1.592 Bn, averaging $1.04 Mn per firm. The Southeast region had reported annual sales of $1.065 Bn, followed by the Midwest ($877 Mn), Pacific ($525 Mn), Appalachian ($494 Mn), Northeast ($486 Mn), Southcentral ($202 Mn), Great Plains ($196 Mn), and Mountain ($112 Mn). It should be noted that these are sales for the survey respondents only; they do not represent expanded sales for the entire industry. Average sales per firm were highest in the Great Plains ($2.97 Mn) and Pacific regions ($2.85 Mn), and lowest in the Northeast ($0.93 Mn). Among individual states, average annual sales per firm were highest in Hawaii ($7.19 Mn), Wisconsin ($6.62 Mn), Montana ($4.91 Mn), Missouri ($4.79 Mn), and Nebraska ($4.00 Mn). Retail sales represented 40 percent of overall annual sales reported, and ranged from 27 percent to 97 percent across regions.

**Table 3.** Annual sales reported by surveyed U.S. Green Industry firms in 2013, by region and state

| Region, State | Number Firms Reporting Sales | Total Annual Sales (Mn$) | Average Sales Per Firm (Mn$) | Wholesale Sales (Mn$) | Average Wholesale Sales Per Firm (Mn$) | Retail Sales (Mn$) | Average Retail Sales Per Firm (Mn$) | Percentage of Sales at Retail |
|---|---|---|---|---|---|---|---|---|
| **Appalachian** | **268** | **493.6** | **1.842** | **355.2** | **1.776** | **133.0** | **0.743** | **26.9%** |
| KY | 34 | 58.1 | 1.710 | 19.2 | 0.737 | 39.0 | 1.499 | 67.0% |
| NC | 128 | 304.0 | 2.375 | 250.7 | 2.507 | 50.2 | 0.577 | 16.5% |
| TN | 64 | 72.7 | 1.137 | 32.3 | 0.718 | 39.0 | 0.976 | 53.7% |
| VA | 27 | 51.5 | 1.909 | 48.8 | 2.218 | 2.6 | 0.202 | 5.1% |
| WV | 15 | 7.2 | 0.480 | 4.2 | 0.607 | 2.2 | 0.169 | 30.5% |
| **Great Plains** | **66** | **196.3** | **2.974** | **4.3** | **0.165** | **191.2** | **3.355** | **97.4%** |
| KS | 22 | 55.5 | 2.524 | 2.2 | 0.221 | 53.3 | 2.665 | 96.0% |
| ND | 2 | 0.1 | 0.063 | 0.0 | 0.000 | 0.1 | 0.063 | 100.0% |
| NE | 34 | 136.3 | 4.008 | 1.7 | 0.142 | 133.9 | 4.783 | 98.3% |
| SD | 8 | 4.3 | 0.543 | 0.4 | 0.091 | 3.9 | 0.551 | 88.8% |
| **Midwest** | **386** | **877.4** | **2.273** | **480.7** | **2.478** | **336.2** | **1.136** | **38.3%** |
| IA | 23 | 8.5 | 0.369 | 3.1 | 0.281 | 5.4 | 0.245 | 63.5% |
| IL | 50 | 78.7 | 1.573 | 63.6 | 1.871 | 14.8 | 0.423 | 18.8% |
| IN | 59 | 140.5 | 2.381 | 49.5 | 3.538 | 61.2 | 1.492 | 43.6% |
| MI | 81 | 141.5 | 1.746 | 104.6 | 2.434 | 32.1 | 0.493 | 22.7% |
| MN | 43 | 100.4 | 2.335 | 86.9 | 3.779 | 13.2 | 0.389 | 13.2% |
| MO | 25 | 119.7 | 4.788 | 111.4 | 7.428 | 8.3 | 0.415 | 6.9% |
| OH | 69 | 50.0 | 0.725 | 36.5 | 0.870 | 13.4 | 0.278 | 26.7% |
| WI | 36 | 238.2 | 6.617 | 25.0 | 2.081 | 187.8 | 6.059 | 78.9% |
| **Mountain** | **68** | **112.1** | **1.649** | **36.9** | **0.857** | **29.9** | **0.624** | **26.7%** |
| AZ | 6 | 16.8 | 2.796 | 16.1 | 2.688 | 0.6 | 0.216 | 3.9% |
| CO | 21 | 63.2 | 3.010 | 13.0 | 0.867 | 5.2 | 0.346 | 8.2% |
| ID | 20 | 5.9 | 0.295 | 4.2 | 0.385 | 1.4 | 0.116 | 23.5% |
| MT | 4 | 19.7 | 4.913 | 1.9 | 0.953 | 17.7 | 4.436 | 90.3% |
| NV | 5 | 0.4 | 0.088 | 0.2 | 0.050 | 0.2 | 0.076 | 51.6% |
| UT | 11 | 6.2 | 0.561 | 1.4 | 0.240 | 4.7 | 0.474 | 76.7% |
| WY | 1 | 0.0 | 0.005 | 0.0 | 0.000 | 0.0 | 0.005 | 100.0% |
| **Northeast** | **522** | **485.7** | **0.930** | **241.8** | **0.763** | **241.4** | **0.589** | **49.7%** |
| CT | 14 | 28.0 | 2.001 | 17.4 | 1.743 | 10.3 | 1.142 | 36.7% |
| DE | 13 | 48.3 | 3.714 | 45.4 | 5.672 | 2.9 | 0.264 | 6.0% |
| MA | 15 | 15.4 | 1.024 | 2.2 | 0.245 | 13.2 | 0.939 | 85.6% |
| MD | 24 | 33.8 | 1.410 | 18.3 | 1.078 | 15.5 | 0.862 | 45.8% |
| ME | 25 | 3.3 | 0.132 | 1.0 | 0.070 | 2.3 | 0.101 | 70.3% |
| NH | 1 | 0.1 | 0.125 | 0.1 | 0.075 | 0.1 | 0.050 | 40.0% |
| NJ | 57 | 67.6 | 1.187 | 60.6 | 1.378 | 6.9 | 0.215 | 10.2% |
| NY | 145 | 168.3 | 1.161 | 24.4 | 0.375 | 143.2 | 1.136 | 85.1% |
| PA | 211 | 91.1 | 0.432 | 68.7 | 0.494 | 21.2 | 0.130 | 23.3% |
| RI | 7 | 3.7 | 0.523 | 3.4 | 0.685 | 0.2 | 0.058 | 6.4% |
| VT | 10 | 26.0 | 2.604 | 0.3 | 0.059 | 25.6 | 3.203 | 98.4% |
| **Pacific** | **184** | **524.6** | **2.851** | **297.7** | **2.947** | **212.6** | **1.623** | **40.5%** |
| AK | 1 | 0.1 | 0.125 | 0.1 | 0.083 | 0.0 | 0.042 | 33.3% |
| CA | 112 | 316.5 | 2.826 | 233.3 | 3.029 | 69.9 | 0.944 | 22.1% |
| HI | 4 | 28.8 | 7.188 | 28.6 | 7.148 | 0.2 | 0.079 | 0.5% |
| OR | 32 | 59.1 | 1.847 | 6.7 | 0.744 | 51.8 | 2.073 | 87.6% |
| WA | 35 | 120.1 | 3.432 | 29.0 | 2.905 | 90.7 | 3.129 | 75.5% |
| **Southcentral** | **157** | **201.7** | **1.285** | **100.2** | **0.928** | **77.8** | **0.707** | **38.6%** |
| AR | 4 | 1.4 | 0.344 | 0.8 | 0.268 | 0.6 | 0.143 | 41.6% |
| LA | 31 | 18.4 | 0.592 | 17.5 | 0.760 | 0.9 | 0.062 | 4.7% |
| NM | 10 | 0.8 | 0.084 | 0.3 | 0.053 | 0.5 | 0.052 | 61.8% |
| OK | 5 | 1.1 | 0.210 | 0.4 | 0.140 | 0.3 | 0.110 | 31.5% |
| TX | 107 | 180.1 | 1.683 | 81.1 | 1.112 | 75.5 | 0.956 | 41.9% |
| **Southeast** | **512** | **1,065.3** | **2.081** | **618.7** | **1.990** | **370.3** | **1.206** | **34.8%** |
| AL | 23 | 9.6 | 0.416 | 8.5 | 0.449 | 1.0 | 0.091 | 10.4% |
| FL | 341 | 622.7 | 1.826 | 346.2 | 1.525 | 207.5 | 1.128 | 33.3% |
| GA | 83 | 245.9 | 2.963 | 134.0 | 4.786 | 104.8 | 1.691 | 42.6% |
| MS | 21 | 11.3 | 0.540 | 4.3 | 0.332 | 7.0 | 0.541 | 61.9% |
| SC | 44 | 175.8 | 3.995 | 125.7 | 5.236 | 50.0 | 1.350 | 28.4% |
| **Grand Total** | **2,163** | **3,956.7** | **1.829** | **2,135.5** | **1.643** | **1,592.4** | **1.035** | **40.2%** |

Note: sales values are given in millions dollars.

## Employment

A total of 38,657 employees were reported for all U.S. Green Industry survey respondents in 2013, including 20,946 (54.2%) permanent employees, 16,514 (42.7%) temporary, part-time or seasonal employees, and 1,197 (3.1%) foreign national employees authorized to work in the U.S under the H2A visa program (Figure 3). The Southeast and Midwest regions had the highest employment reported, with 9,065 and 8,815 employees, respectively, followed by the Pacific (5,542), Northeast (6,107), Appalachian (4,147), Southcentral (2,192), Mountain (1,454), and Great Plains (1,335), as shown in Table 4.

The national average number of employees per firm was 18.4, including 9.6 fulltime/permanent employees, 8.9 temporary/part-time/seasonal, and 1.4 H2A employees (Table 5). The states with the highest average number of permanent employees were Arizona (37.5), Massachusetts (28.9), Missouri (47.4), Colorado (20.5), and Virginia (20.0). The states with the highest number of temporary employees per firm, which can be taken as an indication of seasonality in business as well as firm size, were Kansas (40.1), Kansas (30.4), and Minnesota (25.6). States with the largest percentage of H2A employees were Maryland (18.1%), Mississippi (17.3%), Louisiana (14.5%), Ohio (11.2%), and Alabama (10.8%) (Table 5).

Roughly two-thirds (66%) of firms reported that their number of fulltime/permanent employees had remained the same over the past five years, while 19 percent had decreased employment and 15 percent had increased employment. For part-time/temporary/seasonal employees, a similar share of firms kept the same number of employees (61%), and decreased (22%) or increased (17%) employment.

**Figure 3.** Distribution of U.S. Green Industry employment by employee type, 2013

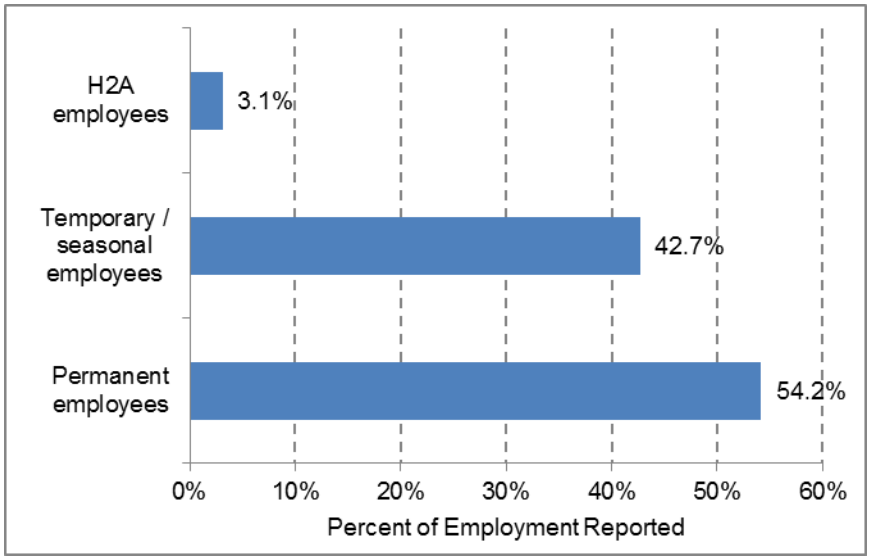


**Table 4.** Employment reported by surveyed U.S. Green Industry firms in 2013, by region and state

| Region, State | Firms Reporting Employment | Total Employees | Fulltime, permanent Employees | Part-Time, Temporary, Seasonal Employees | H2A Employees | Percent Permanent Employees | Percent Part-Time, Temporary, Seasonal Employees | Percent H2A Employees |
|---|---|---|---|---|---|---|---|---|
| **Appalachian** | **243** | **4,147** | **2,443** | **1,593** | **111** | **59** | **38** | **2.7** |
| KY | 32 | 266 | 144 | 122 | 0 | 54 | 46 | 0.0 |
| NC | 112 | 2,451 | 1,457 | 889 | 105 | 59 | 36 | 4.3 |
| TN | 65 | 503 | 315 | 184 | 4 | 63 | 37 | 0.8 |
| VA | 24 | 785 | 481 | 302 | 2 | 61 | 38 | 0.3 |
| WV | 10 | 142 | 46 | 96 | 0 | 32 | 68 | 0.0 |
| **Great Plains** | **68** | **1,335** | **368** | **959** | **8** | **28** | **72** | **0.6** |
| KS | 19 | 761 | 93 | 668 | 0 | 12 | 88 | 0.0 |
| ND | 2 | 5 | 3 | 2 | 0 | 60 | 40 | 0.0 |
| NE | 39 | 440 | 232 | 204 | 4 | 53 | 46 | 0.9 |
| SD | 8 | 129 | 40 | 85 | 4 | 31 | 66 | 3.1 |
| **Midwest** | **381** | **8,815** | **3,111** | **5,393** | **311** | **35** | **61** | **3.5** |
| IA | 21 | 180 | 65 | 115 | 0 | 36 | 64 | 0.0 |
| IL | 47 | 668 | 206 | 462 | 0 | 31 | 69 | 0.0 |
| IN | 75 | 826 | 422 | 404 | 0 | 51 | 49 | 0.0 |
| MI | 68 | 1,781 | 561 | 1,209 | 11 | 31 | 68 | 0.6 |
| MN | 42 | 1,655 | 543 | 973 | 139 | 33 | 59 | 8.4 |
| MO | 26 | 1,843 | 657 | 1,186 | 0 | 36 | 64 | 0.0 |
| OH | 60 | 1,443 | 469 | 813 | 161 | 33 | 56 | 11.2 |
| WI | 42 | 419 | 188 | 231 | 0 | 45 | 55 | 0.0 |
| **Mountain** | **69** | **1,454** | **744** | **697** | **13** | **51** | **48** | **0.9** |
| AZ | 6 | 230 | 225 | 5 | 0 | 98 | 2 | 0.0 |
| CO | 19 | 723 | 369 | 354 | 0 | 51 | 49 | 0.0 |
| ID | 20 | 110 | 32 | 78 | 0 | 29 | 71 | 0.0 |
| MT | 3 | 48 | 11 | 37 | 0 | 23 | 77 | 0.0 |
| NV | 5 | 10 | 3 | 7 | 0 | 30 | 70 | 0.0 |
| UT | 15 | 331 | 104 | 214 | 13 | 31 | 65 | 3.9 |
| WY | 1 | 2 |  | 2 |  | 0 | 100 | 0.0 |
| **Northeast** | **421** | **6,107** | **3,411** | **2,510** | **186** | **56** | **41** | **3.0** |
| CT | 13 | 236 | 101 | 135 | 0 | 43 | 57 | 0.0 |
| DE | 8 | 142 | 58 | 84 | 0 | 41 | 59 | 0.0 |
| MA | 15 | 527 | 405 | 122 | 0 | 77 | 23 | 0.0 |
| MD | 20 | 667 | 237 | 309 | 121 | 36 | 46 | 18.1 |
| ME | 20 | 107 | 40 | 67 | 0 | 37 | 63 | 0.0 |
| NH | 1 | 4 |  | 4 |  | 0 | 100 | 0.0 |
| NJ | 48 | 641 | 275 | 366 | 0 | 43 | 57 | 0.0 |
| NY | 139 | 2,412 | 1,801 | 557 | 54 | 75 | 23 | 2.2 |
| PA | 138 | 1,095 | 414 | 676 | 5 | 38 | 62 | 0.5 |
| RI | 7 | 154 | 37 | 111 | 6 | 24 | 72 | 3.9 |
| VT | 12 | 122 | 43 | 79 | 0 | 35 | 65 | 0.0 |
| **Pacific** | **203** | **5,542** | **3,737** | **1,770** | **35** | **67** | **32** | **0.6** |
| AK | 1 | 7 | 4 | 3 |  | 57 | 43 | 0.0 |
| CA | 105 | 3,710 | 2,503 | 1,207 | 0 | 67 | 33 | 0.0 |
| HI | 5 | 53 | 52 | 1 | 0 | 98 | 2 | 0.0 |
| OR | 42 | 823 | 535 | 286 | 2 | 65 | 35 | 0.2 |
| WA | 50 | 949 | 643 | 273 | 33 | 68 | 29 | 3.5 |
| **Southcentral** | **144** | **2,192** | **1,622** | **494** | **76** | **74** | **23** | **3.5** |
| AR | 4 | 21 | 19 | 2 |  | 90 | 10 | 0.0 |
| LA | 29 | 276 | 173 | 63 | 40 | 63 | 23 | 14.5 |
| NM | 8 | 65 | 49 | 16 | 0 | 75 | 25 | 0.0 |
| OK | 8 | 61 | 27 | 34 | 0 | 44 | 56 | 0.0 |
| TX | 95 | 1,769 | 1,354 | 379 | 36 | 77 | 21 | 2.0 |
| **Southeast** | **572** | **9,065** | **5,510** | **3,098** | **457** | **61** | **34** | **5.0** |
| AL | 26 | 195 | 90 | 84 | 21 | 46 | 43 | 10.8 |
| FL | 364 | 4,907 | 3,316 | 1,509 | 82 | 68 | 31 | 1.7 |
| GA | 108 | 1,647 | 643 | 873 | 131 | 39 | 53 | 8.0 |
| MS | 25 | 271 | 128 | 96 | 47 | 47 | 35 | 17.3 |
| SC | 49 | 2,045 | 1,333 | 536 | 176 | 65 | 26 | 8.6 |
| **Grand Total** | **2,101** | **38,657** | **20,946** | **16,514** | **1,197** | **54** | **43** | **3.1** |

**Table 5.** Average number of employees by U.S. Green Industry firms in 2013, by region and state

| Region, State | Total Employees | Fulltime or Permanent | Part-time or Seasonal | H2A Workers |
|---|---|---|---|---|
| **Appalachian** | **17.1** | **10.1** | **7.5** | **1.4** |
| KY | 8.3 | 4.5 | 4.1 | 0.0 |
| NC | 21.9 | 12.5 | 9.5 | 3.3 |
| TN | 7.7 | 5.3 | 3.5 | 0.2 |
| VA | 32.7 | 20.0 | 12.6 | 0.2 |
| WV | 14.2 | 5.8 | 8.0 | 0.0 |
| **Great Plains** | **19.6** | **5.4** | **13.7** | **0.3** |
| KS | 40.1 | 4.4 | 30.4 | 0.0 |
| ND | 2.5 | 1.5 | 1.0 | 0.0 |
| NE | 11.3 | 6.1 | 5.5 | 0.3 |
| SD | 16.1 | 5.7 | 9.4 | 1.3 |
| **Midwest** | **23.1** | **8.3** | **14.8** | **2.1** |
| IA | 8.6 | 4.1 | 5.8 | 0.0 |
| IL | 14.2 | 4.2 | 10.5 | 0.0 |
| IN | 11.0 | 5.6 | 6.0 | 0.0 |
| MI | 26.2 | 8.1 | 17.0 | 0.4 |
| MN | 39.4 | 14.7 | 25.6 | 12.6 |
| MO | 70.9 | 27.4 | 47.4 | 0.0 |
| OH | 24.1 | 7.9 | 15.3 | 7.0 |
| WI | 10.0 | 4.3 | 4.9 | 0.0 |
| **Mountain** | **21.1** | **11.4** | **9.7** | **0.4** |
| AZ | 38.3 | 37.5 | 1.3 | 0.0 |
| CO | 38.1 | 20.5 | 16.9 | 0.0 |
| ID | 5.5 | 1.8 | 3.5 | 0.0 |
| MT | 16.0 | 3.7 | 12.3 | 0.0 |
| NV | 2.0 | 0.6 | 1.2 | 0.0 |
| UT | 22.1 | 6.9 | 14.3 | 2.2 |
| WY | 2.0 | | 2.0 | |
| **Northeast** | **14.5** | **7.8** | **6.0** | **1.0** |
| CT | 18.2 | 6.7 | 9.6 | 0.0 |
| DE | 17.8 | 4.5 | 9.3 | 0.0 |
| MA | 35.1 | 28.9 | 9.4 | 0.0 |
| MD | 33.4 | 11.3 | 19.3 | 15.1 |
| ME | 5.4 | 2.2 | 3.5 | 0.0 |
| NH | 4.0 | | 4.0 | |
| NJ | 13.4 | 5.5 | 8.7 | 0.0 |
| NY | 17.4 | 12.2 | 4.2 | 0.7 |
| PA | 7.9 | 3.0 | 4.5 | 0.1 |
| RI | 22.0 | 4.6 | 18.5 | 1.5 |
| VT | 10.2 | 4.3 | 6.1 | 0.0 |
| **Pacific** | **27.3** | **16.7** | **10.4** | **0.4** |
| AK | 7.0 | 4.0 | 3.0 | |
| CA | 35.3 | 22.2 | 16.5 | 0.0 |
| HI | 10.6 | 10.4 | 0.3 | 0.0 |
| OR | 19.6 | 11.6 | 6.8 | 0.1 |
| WA | 19.0 | 10.9 | 5.4 | 1.1 |
| **Southcentral** | **15.2** | **10.5** | **4.5** | **1.4** |
| AR | 5.3 | 4.8 | 2.0 | |
| LA | 9.5 | 5.6 | 2.5 | 3.3 |
| NM | 8.1 | 7.0 | 2.3 | 0.0 |
| OK | 7.6 | 3.0 | 4.9 | 0.0 |
| TX | 18.6 | 13.0 | 5.5 | 1.1 |
| **Southeast** | **15.8** | **9.0** | **7.1** | **2.1** |
| AL | 7.5 | 3.3 | 3.7 | 2.3 |
| FL | 13.5 | 8.6 | 5.8 | 0.6 |
| GA | 15.3 | 5.5 | 10.2 | 3.1 |
| MS | 10.8 | 5.6 | 5.3 | 5.2 |
| SC | 41.7 | 22.6 | 10.3 | 6.1 |
| **Grand Total** | **18.4** | **9.6** | **8.9** | **1.4** |

**Firm Size Distribution**

Annual sales were reported in the survey either as a specific amount or as a range, from less than $250,000 to more than $50 million (Table 2). Over half (55%) of 2,163 respondents were firms with less than $250,000 in annual sales, while 13 percent of firms had sales of $250,000 to $999,000, 8.5 percent had sales of $1 to $4.9 Mn, 1.1 percent had sales of $5 to 9.9 Mn, and 3.8 percent of firms had annual sales of $10 Mn or greater, including 0.3 percent with sales $50 Mn or more (Figure 3). Approximately 19 percent of firms did not report annual sales. The states with all surveyed firms reporting less than $250,000 in annual sales were North Dakota, Nevada, Wyoming, New Hampshire and Alaska (Table 6). The states with the highest percentage of firms reporting $10 Mn or greater in annual sales were Hawaii (25%), Montana (25%), and Wisconsin (19.4%), as shown in Table 5.

**Figure 3.** Distribution of annual sales reported by U.S. Green Industry firms in 2013

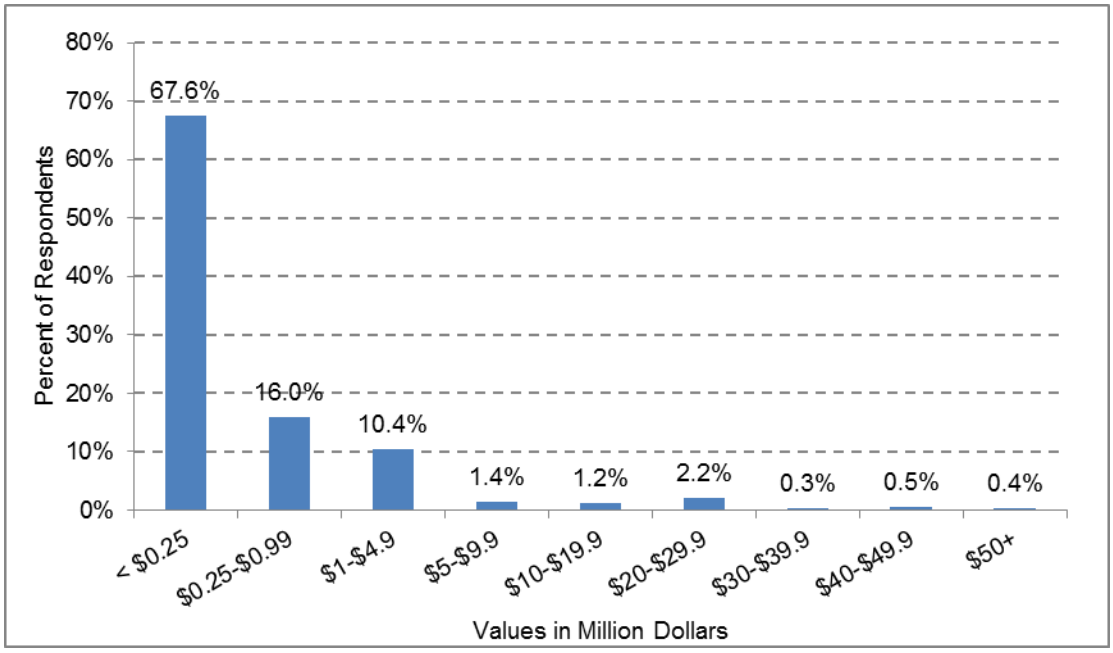


**Table 6.** Distribution of annual sales reported by Green Industry firms in U.S. states and regions in 2013

| Region, State | Less than $0.25 Mn | $0.25-$0.99 Mn | $1-$4.9 Mn | $5-$9.9 Mn | $10-$19.9 Mn | $20-$29.9 Mn | $30-$39.9 Mn | $40-$49.9 Mn | $50+ Mn | $10+ Mn |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Percent of Firms | | | | | |
| **Appalachian** | **65.3** | **19.4** | **9.3** | **2.2** | **1.5** | **1.5** | **0.4** | **0.0** | **0.4** | **3.7** |
| KY | 79.4 | 8.8 | 5.9 | 0.0 | 0.0 | 5.9 | 0.0 | 0.0 | 0.0 | 5.9 |
| NC | 60.9 | 24.2 | 9.4 | 1.6 | 2.3 | 0.0 | 0.8 | 0.0 | 0.8 | 3.9 |
| TN | 70.3 | 17.2 | 9.4 | 0.0 | 0.0 | 3.1 | 0.0 | 0.0 | 0.0 | 3.1 |
| VA | 55.6 | 11.1 | 14.8 | 14.8 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 |
| WV | 66.7 | 26.7 | 6.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Great Plains** | **72.7** | **13.6** | **4.5** | **1.5** | **1.5** | **1.5** | **0.0** | **3.0** | **1.5** | **7.6** |
| KS | 68.2 | 22.7 | 0.0 | 4.5 | 0.0 | 0.0 | 0.0 | 4.5 | 0.0 | 4.5 |
| ND | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NE | 79.4 | 2.9 | 5.9 | 0.0 | 2.9 | 2.9 | 0.0 | 2.9 | 2.9 | 11.8 |
| SD | 50.0 | 37.5 | 12.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Midwest** | **68.1** | **15.3** | **10.6** | **0.5** | **1.0** | **2.3** | **0.5** | **0.8** | **0.8** | **5.4** |
| IA | 73.9 | 17.4 | 8.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| IL | 58.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 |
| IN | 69.5 | 11.9 | 8.5 | 0.0 | 3.4 | 6.8 | 0.0 | 0.0 | 0.0 | 10.2 |
| MI | 72.8 | 12.3 | 9.9 | 1.2 | 1.2 | 0.0 | 1.2 | 0.0 | 1.2 | 3.7 |
| MN | 69.8 | 18.6 | 7.0 | 0.0 | 2.3 | 0.0 | 0.0 | 0.0 | 2.3 | 4.7 |
| MO | 60.0 | 16.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 4.0 |
| OH | 73.9 | 17.4 | 5.8 | 1.4 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 1.4 |
| WI | 58.3 | 11.1 | 11.1 | 0.0 | 0.0 | 11.1 | 2.8 | 5.6 | 0.0 | 19.4 |
| **Mountain** | **57.4** | **19.1** | **16.2** | **4.4** | **1.5** | **0.0** | **0.0** | **1.5** | **0.0** | **2.9** |
| AZ | 16.7 | 16.7 | 33.3 | 33.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| CO | 38.1 | 28.6 | 23.8 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 4.8 |
| ID | 70.0 | 20.0 | 10.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| MT | 50.0 | 0.0 | 25.0 | 0.0 | 25.0 | 0.0 | 0.0 | 0.0 | 0.0 | 25.0 |
| NV | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| UT | 72.7 | 18.2 | 9.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| WY | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Northeast** | **78.5** | **11.5** | **6.3** | **1.5** | **0.6** | **1.0** | **0.2** | **0.2** | **0.2** | **2.1** |
| CT | 35.7 | 28.6 | 14.3 | 21.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| DE | 84.6 | 0.0 | 7.7 | 0.0 | 0.0 | 0.0 | 0.0 | 7.7 | 0.0 | 7.7 |
| MA | 60.0 | 26.7 | 6.7 | 0.0 | 6.7 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 |
| MD | 54.2 | 12.5 | 20.8 | 12.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ME | 76.0 | 24.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NH | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NJ | 64.9 | 14.0 | 17.5 | 0.0 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 3.5 |
| NY | 84.1 | 8.3 | 4.1 | 0.0 | 0.7 | 2.1 | 0.0 | 0.0 | 0.7 | 3.4 |
| PA | 84.8 | 10.4 | 3.3 | 0.9 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 |
| RI | 71.4 | 14.3 | 14.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| VT | 90.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.0 | 0.0 | 0.0 | 0.0 | 10.0 |
| **Pacific** | **54.3** | **17.9** | **15.8** | **3.3** | **2.2** | **4.9** | **1.1** | **0.0** | **0.5** | **8.7** |
| AK | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| CA | 44.6 | 23.2 | 18.8 | 5.4 | 3.6 | 2.7 | 0.9 | 0.0 | 0.9 | 8.0 |
| HI | 0.0 | 25.0 | 50.0 | 0.0 | 0.0 | 25.0 | 0.0 | 0.0 | 0.0 | 25.0 |
| OR | 71.9 | 12.5 | 9.4 | 0.0 | 0.0 | 6.3 | 0.0 | 0.0 | 0.0 | 6.3 |
| WA | 74.3 | 5.7 | 8.6 | 0.0 | 0.0 | 8.6 | 2.9 | 0.0 | 0.0 | 11.4 |
| **Southcentral** | **62.4** | **21.0** | **12.1** | **1.3** | **1.3** | **1.3** | **0.0** | **0.6** | **0.0** | **3.2** |
| AR | 50.0 | 50.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| LA | 67.7 | 22.6 | 6.5 | 0.0 | 3.2 | 0.0 | 0.0 | 0.0 | 0.0 | 3.2 |
| NM | 90.0 | 10.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| OK | 60.0 | 40.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| TX | 58.9 | 19.6 | 15.9 | 1.9 | 0.9 | 1.9 | 0.0 | 0.9 | 0.0 | 3.7 |
| **Southeast** | **64.3** | **17.0** | **12.7** | **0.4** | **1.4** | **3.3** | **0.2** | **0.4** | **0.4** | **5.7** |
| AL | 56.5 | 34.8 | 8.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| FL | 62.2 | 18.8 | 13.5 | 0.3 | 2.1 | 2.3 | 0.0 | 0.6 | 0.3 | 5.3 |
| GA | 67.5 | 7.2 | 14.5 | 1.2 | 0.0 | 9.6 | 0.0 | 0.0 | 0.0 | 9.6 |
| MS | 47.6 | 33.3 | 19.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| SC | 86.4 | 4.5 | 2.3 | 0.0 | 0.0 | 2.3 | 2.3 | 0.0 | 2.3 | 6.8 |
| **Grand Total** | **67.6** | **16.0** | **10.4** | **1.4** | **1.2** | **2.2** | **0.3** | **0.5** | **0.4** | **4.6** |

Note: categories are denominated in million dollars.

## Ornamental Plant Types

The distribution of eighteen major ornamental plant types sold in 2013 by U.S. Green Industry firms are summarized as the share total sales reported in Figure 4. Nationally, across all industry groups, the largest specific plant type sold was bedding plant-flowering annuals, representing 17.6 percent of total sales reported. Miscellaneous other non-specific plants represented 10.5 percent of sales. A second tier of plant types as a share of sales were deciduous shade and flowering trees (9.0%), herbaceous perennials (8.6%), deciduous shrubs (7.3%), bedding plants-vegetables/fruits/herbs (5.8%), and broad-leaved evergreen shrubs (5.4%). A third tier of plant types included fruit trees (4.8%), evergreen trees (4.8%), potted flowering plants (4.5%), Christmas trees (4.1%), and sod (3.1%). Plant types that represented 3 percent or less of sales were roses (3.0%), tropical foliage (2.7%), propagated materials-liners/cuttings/plugs (2.4%), vines and ground covers (2.3%), narrow-leaved evergreen shrubs (2.4%), and azaleas (1.5%). Plant types that increased as a share of sales since the previous survey for 2008 were flowering annual bedding plants, herbaceous perennials, and fruit trees.

Plant type sales are summarized by state/region in Table 7. In the Appalachian and Great Plain regions, flowering annual bedding plants represented over 30 percent of total sales. Plant types that had an above-average percentages of total sales were fruit trees in the Southcentral (29%), deciduous shade/flowering trees in the Midwest and Southcentral (16%, 15%), deciduous shrubs in the Midwest (18%), Evergreen trees in the Northeast (9%), Herbaceous perennials in the Midwest and Northeast (13%), vegetables/fruits/herbs bedding plants in the Pacific and Great Plains (14%), flowering potted plants in the Pacific (10%), Christmas trees in the Great Plains (23%), fruit trees in the Southcentral (29%), Sod in the southeast (8%), propagated material in the Mountain region (21%), and miscellaneous other plant types in the Southeast (22%).

**Figure 4.** Distribution of U.S. Green Industry sales by plant types in 2013

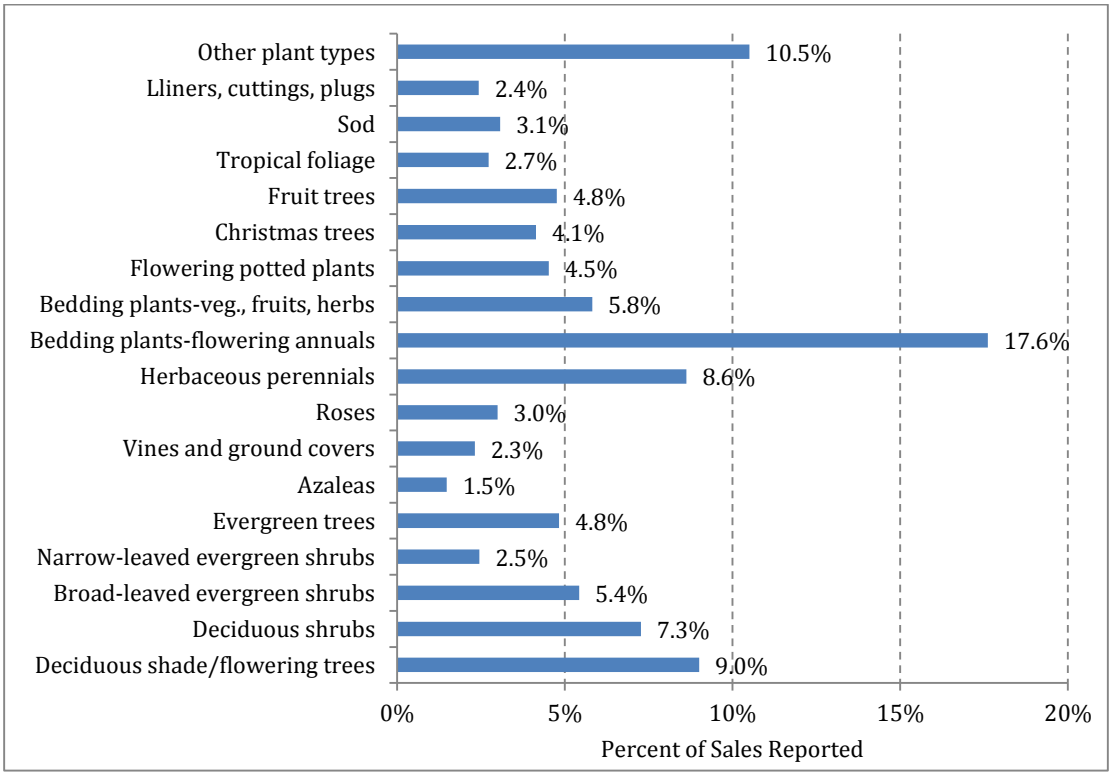


**Table 7.** Distribution of ornamental plant types sold by Green Industry firms in U.S. states and regions in 2013

| Region, State | Deciduous shade and flowering trees | Deciduous shrubs | Broad-leaved evergreen shrubs | Narrow-leaved evergreen shrubs | Evergreen trees | Azaleas | Vines and ground covers | Roses | Herbaceous perennials |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Percent of Total Sales | | | | |
| **Appalachian** | **9** | **6** | **10** | **2** | **5** | **4** | **3** | **3** | **10** |
| KY | 16 | 7 | 16 | 4 | 5 | 10 | 1 | 6 | 7 |
| NC | 4 | 4 | 8 | 1 | 3 | 3 | 1 | 1 | 7 |
| TN | 16 | 15 | 2 | 1 | 9 | 0 | 11 | 6 | 30 |
| VA | 16 | 9 | 22 | 6 | 7 | 5 | 3 | 7 | 6 |
| WV | 0 | 3 | 1 | 1 | 0 | 1 | 1 | 3 | 8 |
| **Great Plains** | **1** | **1** | **1** | **1** | **1** | **0** | **3** | **2** | **10** |
| KS | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| ND | 0 | 7 | 0 | 0 | 0 | 0 | 2 | 1 | 12 |
| NE | 0 | 1 | 1 | 1 | 1 | 0 | 4 | 3 | 13 |
| SD | 12 | 7 | 1 | 1 | 9 | 0 | 3 | 3 | 13 |
| **Midwest** | **16** | **18** | **2** | **4** | **6** | **1** | **1** | **2** | **13** |
| IA | 17 | 13 | 5 | 4 | 9 | 3 | 5 | 5 | 10 |
| IL | 12 | 33 | 3 | 2 | 3 | 1 | 0 | 4 | 15 |
| IN | 20 | 12 | 2 | 6 | 10 | 1 | 4 | 3 | 25 |
| MI | 14 | 9 | 1 | 0 | 6 | 0 | 0 | 0 | 7 |
| MN | 23 | 31 | 0 | 4 | 2 | 1 | 1 | 4 | 5 |
| MO | 3 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| OH | 16 | 23 | 9 | 4 | 5 | 1 | 2 | 5 | 16 |
| WI | 22 | 24 | 2 | 6 | 9 | 0 | 1 | 2 | 18 |
| **Mountain** | **10** | **4** | **3** | **1** | **8** | **0** | **3** | **0** | **6** |
| AZ | 24 | 7 | 18 | 0 | 26 | 0 | 8 | 0 | 5 |
| CO | 9 | 3 | 1 | 1 | 7 | 0 | 0 | 0 | 5 |
| ID | 23 | 2 | 0 | 0 | 7 | 0 | 0 | 0 | 2 |
| MT | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 9 |
| NV | 16 | 17 | 1 | 1 | 3 | 0 | 1 | 0 | 28 |
| UT | 13 | 16 | 4 | 3 | 10 | 1 | 8 | 3 | 9 |
| WY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Northeast** | **6** | **7** | **3** | **2** | **9** | **1** | **0** | **2** | **13** |
| CT | 7 | 6 | 6 | 3 | 5 | 2 | 1 | 3 | 39 |
| DE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MA | 10 | 23 | 7 | 0 | 16 | 2 | 2 | 4 | 20 |
| MD | 16 | 10 | 10 | 9 | 10 | 1 | 1 | 2 | 7 |
| ME | 9 | 13 | 2 | 2 | 11 | 1 | 3 | 3 | 12 |
| NH | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| NJ | 13 | 27 | 7 | 8 | 22 | 2 | 1 | 2 | 3 |
| NY | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 4 | 18 |
| PA | 9 | 4 | 2 | 1 | 21 | 1 | 1 | 1 | 11 |
| RI | 8 | 20 | 14 | 45 | 5 | 0 | 0 | 2 | 1 |
| VT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| **Pacific** | **4** | **5** | **8** | **2** | **4** | **2** | **3** | **3** | **4** |
| AK | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CA | 5 | 3 | 7 | 2 | 4 | 1 | 3 | 6 | 5 |
| HI | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| OR | 9 | 7 | 17 | 2 | 3 | 9 | 2 | 0 | 1 |
| WA | 2 | 10 | 8 | 2 | 6 | 2 | 3 | 0 | 5 |
| **Southcentral** | **15** | **4** | **7** | **5** | **4** | **1** | **2** | **3** | **6** |
| AR | 33 | 10 | 19 | 1 | 6 | 0 | 2 | 0 | 9 |
| LA | 8 | 8 | 24 | 11 | 3 | 4 | 8 | 3 | 3 |
| NM | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 9 |
| OK | 4 | 5 | 4 | 4 | 6 | 2 | 2 | 1 | 4 |
| TX | 16 | 3 | 5 | 4 | 4 | 0 | 1 | 3 | 6 |
| **Southeast** | **7** | **3** | **7** | **2** | **3** | **2** | **3** | **4** | **6** |
| AL | 9 | 4 | 14 | 1 | 24 | 3 | 1 | 0 | 1 |
| FL | 9 | 2 | 6 | 2 | 4 | 1 | 1 | 4 | 3 |
| GA | 7 | 4 | 11 | 2 | 2 | 2 | 10 | 5 | 14 |
| MS | 4 | 4 | 9 | 2 | 1 | 3 | 1 | 2 | 1 |
| SC | 3 | 4 | 3 | 1 | 2 | 2 | 2 | 6 | 5 |
| **Grand Total** | **9** | **7** | **5** | **2** | **5** | **1** | **2** | **3** | **9** |

**Table 7 (continued).** Distribution of ornamental plant types sold by Green Industry firms in U.S. states and regions in 2013

| Region, State | Bedding plants-flowering annuals | Bedding plants-vegetables, fruits, and herbs | Flowering potted plants | Christmas trees | Fruit trees | Tropical foliage | Sod | Propagated material (liners, cuttings, plug, etc.) | Other (unspecified) plant types |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Percent of Total Sales | | | | |
| **Appalachian** | **30** | **3** | **2** | **9** | **1** | **2** | **0** | **0** | **2** |
| KY | 12 | 10 | 1 | 1 | 1 | 0 | 0 | 0 | 4 |
| NC | 43 | 2 | 3 | 15 | 0 | 3 | 1 | 0 | 0 |
| TN | 3 | 2 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |
| VA | 5 | 0 | 0 | 1 | 5 | 0 | 0 | 1 | 7 |
| WV | 34 | 18 | 11 | 3 | 1 | 12 | 0 | 0 | 4 |
| **Great Plains** | **34** | **14** | **6** | **23** | **0** | **2** | **1** | **2** | **0** |
| KS | 69 | 24 | 2 | 0 | 1 | 1 | 0 | 0 | 0 |
| ND | 44 | 18 | 16 | 0 | 1 | 0 | 0 | 0 | 0 |
| NE | 20 | 9 | 8 | 33 | 0 | 2 | 1 | 2 | 0 |
| SD | 28 | 8 | 0 | 0 | 1 | 0 | 0 | 0 | 12 |
| **Midwest** | **24** | **3** | **4** | **1** | **1** | **1** | **2** | **1** | **2** |
| IA | 10 | 2 | 2 | 5 | 1 | 1 | 3 | 1 | 4 |
| IL | 7 | 1 | 8 | 1 | 0 | 0 | 5 | 3 | 1 |
| IN | 4 | 5 | 2 | 0 | 1 | 2 | 2 | 0 | 0 |
| MI | 40 | 2 | 8 | 1 | 0 | 0 | 0 | 3 | 11 |
| MN | 13 | 2 | 4 | 1 | 4 | 1 | 0 | 4 | 0 |
| MO | 88 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| OH | 8 | 3 | 1 | 2 | 0 | 0 | 0 | 1 | 3 |
| WI | 5 | 4 | 4 | 1 | 1 | 0 | 3 | 0 | 0 |
| **Mountain** | **27** | **8** | **3** | **0** | **2** | **0** | **3** | **21** | **2** |
| AZ | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 2 | 2 |
| CO | 32 | 2 | 0 | 0 | 0 | 0 | 3 | 36 | 1 |
| ID | 10 | 26 | 4 | 0 | 4 | 0 | 21 | 2 | 0 |
| MT | 40 | 28 | 18 | 0 | 0 | 0 | 0 | 0 | 0 |
| NV | 0 | 1 | 0 | 0 | 0 | 0 | 28 | 1 | 3 |
| UT | 15 | 6 | 0 | 4 | 1 | 0 | 1 | 0 | 6 |
| WY | 50 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Northeast** | **22** | **7** | **3** | **6** | **1** | **1** | **1** | **6** | **12** |
| CT | 4 | 1 | 5 | 0 | 0 | 1 | 2 | 0 | 15 |
| DE | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 47 | 47 |
| MA | 9 | 3 | 0 | 1 | 1 | 0 | 0 | 1 | 2 |
| MD | 7 | 5 | 3 | 1 | 1 | 1 | 11 | 2 | 2 |
| ME | 22 | 12 | 4 | 4 | 3 | 1 | 1 | 0 | 0 |
| NH | 94 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| NJ | 8 | 1 | 2 | 1 | 0 | 0 | 0 | 2 | 1 |
| NY | 41 | 9 | 5 | 4 | 1 | 0 | 0 | 0 | 15 |
| PA | 12 | 6 | 4 | 22 | 0 | 2 | 0 | 1 | 3 |
| RI | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 3 |
| VT | 53 | 30 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| **Pacific** | **10** | **14** | **10** | **1** | **7** | **5** | **0** | **2** | **16** |
| AK | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 |
| CA | 6 | 12 | 3 | 2 | 11 | 3 | 0 | 1 | 26 |
| HI | 0 | 0 | 90 | 0 | 0 | 2 | 0 | 7 | 0 |
| OR | 1 | 1 | 15 | 0 | 0 | 27 | 1 | 0 | 3 |
| WA | 24 | 30 | 4 | 0 | 1 | 0 | 0 | 2 | 2 |
| **Southcentral** | **6** | **3** | **3** | **2** | **29** | **4** | **3** | **1** | **2** |
| AR | 5 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 10 |
| LA | 11 | 2 | 3 | 1 | 5 | 3 | 0 | 2 | 1 |
| NM | 9 | 5 | 19 | 0 | 0 | 0 | 0 | 17 | 36 |
| OK | 25 | 26 | 11 | 0 | 2 | 3 | 2 | 1 | 0 |
| TX | 6 | 3 | 3 | 2 | 32 | 4 | 3 | 0 | 2 |
| **Southeast** | **7** | **4** | **4** | **2** | **7** | **5** | **8** | **2** | **22** |
| AL | 21 | 1 | 0 | 0 | 7 | 2 | 0 | 6 | 6 |
| FL | 5 | 5 | 1 | 1 | 12 | 9 | 12 | 3 | 19 |
| GA | 13 | 2 | 13 | 6 | 0 | 0 | 5 | 1 | 3 |
| MS | 24 | 27 | 8 | 0 | 11 | 0 | 0 | 1 | 0 |
| SC | 1 | 1 | 1 | 2 | 0 | 0 | 0 | 2 | 63 |
| **Grand Total** | **18** | **6** | **5** | **4** | **5** | **3** | **3** | **2** | **11** |

## Native Plants

Native plants are commonly defined as plants present in the respondent's home state before European settlement. In recent years, there has been increasing emphasis on using native plants for landscaping because they may be well adapted to prevailing environmental conditions, require less maintenance, and are less likely to become invasive. For the U.S. overall, native plants represented 17.1 percent of total sales reported by survey respondents for 2013. In the previous national survey for 2008, native plants represented 13.4 percent of total sales. The share of total sales of native plants in each state and region are shown in Table 8. The states with the highest share of sales in native plants were of Illinois (63%), Arkansas (51%), Tennessee (44%), Kentucky (33%) and New Jersey (33%). Across regions, native plant sales ranged from 26 percent in the Appalachians to 8 percent in the Mountain region.

**Table 8.** Native plants sales as a percentage of total sales by Green Industry firms in U.S. states and regions in 2013

| Region, State | Percent of Total Sales | Region, State | Percent of Total Sales |
|---|---|---|---|
| **Appalachian** | **26** | **Northeast** | **14** |
| KY | 33 | CT | 22 |
| NC | 24 | DE | 10 |
| TN | 44 | MA | 13 |
| VA | 11 | MD | 14 |
| WV | 3 | ME | 15 |
| **Great Plains** | **13** | NH | 0 |
| KS | 41 | NJ | 33 |
| ND | 20 | NY | 13 |
| NE | 3 | PA | 6 |
| SD | 2 | RI | 9 |
| **Midwest** | **19** | VT | 1 |
| IA | 5 | **Pacific** | **8** |
| IL | 63 | AK | 0 |
| IN | 25 | CA | 7 |
| MI | 28 | HI | 0 |
| MN | 1 | OR | 21 |
| MO | 4 | WA | 8 |
| OH | 10 | **Southcentral** | **20** |
| WI | 14 | AR | 51 |
| **Mountain** | **8** | LA | 2 |
| AZ | 30 | NM | 12 |
| CO | 5 | OK | 17 |
| ID | 12 | TX | 22 |
| MT | 0 | **Southeast** | **18** |
| NV | 30 | AL | 31 |
| UT | 3 | FL | 20 |
| WY | 0 | GA | 21 |
| | | MS | 15 |
| | | SC | 6 |
| | | **Grand Total** | **17** |

## Nursery Product Forms

Respondents were asked to indicate the percentage distribution of their sales by product form (root packaging media), including containerized, balled and burlapped, field grow bag, bare root, balled and potted/ process balled, in-ground containers (including pot-in-pot), and other types (e.g., cut trees, budwood, scions, seeds, tissue culture plantlets, unrooted cuttings). Container-grown plants were the dominant product form reported in the survey, representing 73 percent of overall sales (Figure 5). A second tier of product forms were balled and burlapped (8.1% of sales), bare root (7.0%), and miscellaneous other forms (8.6%). In-ground containers/pot-in-pot systems, balled/potted plants and field grow bags had less than 2 percent market share. The share for containerized product increased from 65 percent in the previous national survey for 2008, while all other specific product forms were decreased (except miscellaneous).

Containerized products constituted over 90 percent of sales in Missouri, Arizona, Montana, Wyoming, New Hampshire, New York, Vermont, Hawaii, Louisiana, and Georgia, as shown in Table 9. Balled/burlapped products represented over half of sales in Missouri (83%), Illinois (66%), South Carolina (57%), and Michigan (52%). Balled/burlapped plants were a significant share of sales in New Jersey (60%), Arkansas (57%) and Rhode Island (76%). Bare root products were significant in Delaware (52%) and South Carolina (42%). In-ground containers were most popular in Texas (16%). Various other non-specific product forms were an important share of sales in Colorado (74%), Nevada (48%), Pennsylvania (44%), and New Mexico (36%).

**Figure 5.** Distribution of ornamental plant product forms sold in the U.S. in 2013

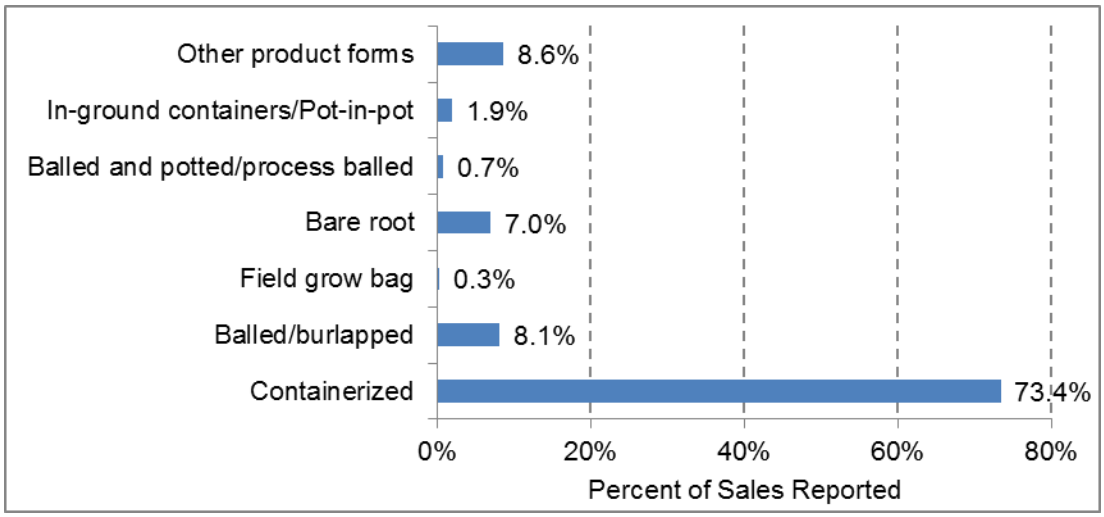


**Table 9.** Distribution of sales of nursery product forms by Green Industry firms in U.S. states and regions in 2013

| Region, State | Containerized | Balled-burlapped | Field grow bag | Bare root | Balled and potted-process balled | In-ground containers-Pot-in-pot | Other product forms |
|---|---|---|---|---|---|---|---|
| | | | | Percent of Total Sales | | | |
| **Appalachian** | **76** | **8** | **0** | **4** | **0** | **2** | **9** |
| KY | 79 | 15 | 0 | 1 | 0 | 5 | 0 |
| NC | 79 | 4 | 0 | 0 | 0 | 1 | 15 |
| TN | 66 | 10 | 0 | 23 | 0 | 0 | 0 |
| VA | 72 | 21 | 0 | 0 | 0 | 6 | 1 |
| WV | 76 | 14 | 0 | 0 | 0 | 0 | 10 |
| **Great Plains** | **56** | **3** | **0** | **13** | **0** | **0** | **27** |
| KS | 99 | 0 | 0 | 0 | 0 | 0 | 0 |
| ND | 100 | 0 | 0 | 0 | 0 | 0 | 0 |
| NE | 39 | 4 | 0 | 19 | 0 | 0 | 39 |
| SD | 65 | 20 | 0 | 6 | 3 | 0 | 6 |
| **Midwest** | **76** | **13** | **0** | **8** | **0** | **3** | **1** |
| IA | 71 | 17 | 0 | 6 | 0 | 0 | 5 |
| IL | 76 | 15 | 0 | 0 | 0 | 1 | 6 |
| IN | 68 | 27 | 0 | 0 | 0 | 5 | 0 |
| MI | 69 | 2 | 0 | 25 | 0 | 3 | 1 |
| MN | 60 | 2 | 0 | 23 | 0 | 11 | 4 |
| MO | 97 | 1 | 0 | 1 | 0 | 0 | 0 |
| OH | 83 | 12 | 0 | 3 | 0 | 0 | 3 |
| WI | 78 | 20 | 0 | 1 | 0 | 0 | 0 |
| **Mountain** | **43** | **10** | **0** | **0** | **0** | **0** | **46** |
| AZ | 98 | 2 | 0 | 1 | 0 | 0 | 0 |
| CO | 13 | 13 | 0 | 0 | 0 | 0 | 74 |
| ID | 43 | 28 | 0 | 0 | 0 | 5 | 23 |
| MT | 91 | 0 | 0 | 0 | 0 | 0 | 9 |
| NV | 38 | 0 | 0 | 0 | 14 | 0 | 48 |
| UT | 86 | 8 | 0 | 4 | 0 | 1 | 0 |
| WY | 100 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Northeast** | **63** | **17** | **0** | **7** | **0** | **1** | **11** |
| CT | 49 | 20 | 0 | 26 | 2 | 1 | 2 |
| DE | 48 | 0 | 0 | 52 | 0 | 0 | 0 |
| MA | 71 | 24 | 3 | 1 | 0 | 0 | 1 |
| MD | 53 | 34 | 0 | 0 | 0 | 1 | 12 |
| ME | 59 | 18 | 1 | 14 | 0 | 1 | 8 |
| NH | 100 | 0 | 0 | 0 | 0 | 0 | 0 |
| NJ | 35 | 60 | 0 | 0 | 0 | 0 | 4 |
| NY | 92 | 2 | 0 | 1 | 0 | 0 | 4 |
| PA | 36 | 13 | 0 | 1 | 0 | 5 | 44 |
| RI | 19 | 76 | 1 | 1 | 0 | 1 | 1 |
| VT | 100 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Pacific** | **82** | **3** | **0** | **2** | **1** | **0** | **11** |
| AK | | | | | | | |
| CA | 79 | 0 | 0 | 3 | 0 | 0 | 17 |
| HI | 98 | 0 | 1 | 0 | 0 | 0 | 1 |
| OR | 83 | 13 | 0 | 1 | 0 | 0 | 3 |
| WA | 85 | 6 | 0 | 3 | 5 | 0 | 2 |
| **Southcentral** | **68** | **3** | **0** | **1** | **11** | **14** | **3** |
| AR | 34 | 57 | 0 | 9 | 0 | 0 | 0 |
| LA | 93 | 2 | 0 | 0 | 0 | 1 | 4 |
| NM | 53 | 0 | 0 | 11 | 0 | 0 | 36 |
| OK | 81 | 7 | 5 | 0 | 3 | 3 | 1 |
| TX | 65 | 3 | 0 | 1 | 12 | 16 | 3 |
| **Southeast** | **78** | **4** | **1** | **11** | **0** | **1** | **5** |
| AL | 51 | 13 | 0 | 33 | 0 | 0 | 3 |
| FL | 78 | 7 | 2 | 5 | 0 | 1 | 8 |
| GA | 97 | 2 | 0 | 1 | 0 | 0 | 0 |
| MS | 87 | 2 | 0 | 7 | 0 | 0 | 4 |
| SC | 53 | 0 | 0 | 42 | 0 | 0 | 5 |
| **Grand Total** | **73** | **8** | **0** | **7** | **1** | **2** | **9** |

## Market Channels

Respondents were asked to specify the percentage of total sales to different wholesale market outlets, including mass merchandisers, home centers, single location garden centers, multiple location garden centers, landscape firms, re-wholesalers, and others. The most popular outlet as a share of total wholesale sales was landscape firms, representing 28 percent of sales nationally, followed by re-wholesalers and home centers (20% each), single location retail garden centers (17%), mass merchandisers (10%), and multiple location garden centers (5%), as shown in Figure 6. The share of wholesale sales to home centers more than doubled from 8 percent in 2008, and the share to mass merchandisers increased slightly, while other wholesale outlets declined, especially single location garden centers.

Results for market channel sales for individual states and regions are shown in Table 10. Landscape market sales as a share of total sales were in excess of 60 percent for Nebraska (66%), South Dakota (66%), Iowa (70%), Illinois (66%), Wisconsin (84%), Colorado (76%), Maine (69%), New Hampshire (90%), New Jersey (61%), Oregon (86%), and Oklahoma (100%). Sales to re-wholesalers were highest in Alaska (100%), Delaware (90%), Hawaii (87%), Rhode Island (64%) and New Mexico (63%). Sales to home centers were highest in Missouri (93%) and North Carolina (55%). Sales to single location garden centers were highest in Montana (73%), Pennsylvania (56%), Vermont (55%), and Washington (52%). Sales to mass merchandisers were highest in West Virginia (50%) and New York (43%). Sales to multiple location garden centers were highest in West Virginia (16%), Ohio (14%) and Mississippi (14%).

**Figure 6.** Distribution of wholesale market channel sales of Green Industry firms in the U.S. in 2013

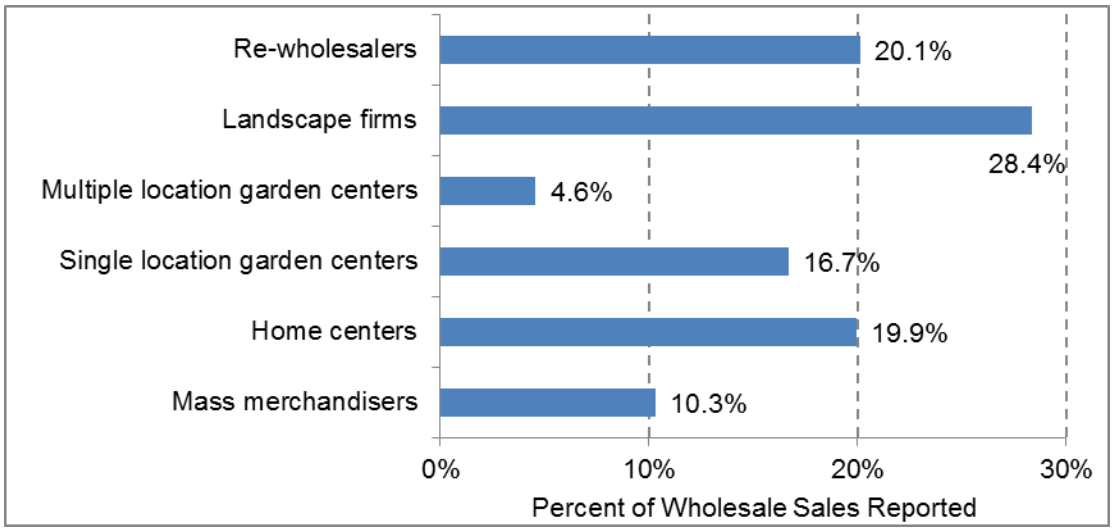


**Table 10.** Distribution of wholesale market channel sales by Green Industry firms in U.S. states and regions in 2013

| Region, State | Mass merchant-disers | Home centers | Single location garden centers | Multiple location garden centers | Landscape firms | Re-wholesalers |
|---|---|---|---|---|---|---|
| | | | Percent of Wholesale Sales | | | |
| **Appalachian** | **15** | **41** | **9** | **3** | **22** | **9** |
| KY | 0 | 30 | 14 | 0 | 43 | 14 |
| NC | 21 | 55 | 6 | 1 | 13 | 4 |
| TN | 0 | 0 | 18 | 1 | 56 | 24 |
| VA | 0 | 1 | 18 | 14 | 39 | 28 |
| WV | 50 | 0 | 28 | 16 | 6 | 0 |
| **Great Plains** | **13** | **5** | **42** | **3** | **34** | **3** |
| KS | 25 | 8 | 58 | 5 | 4 | 0 |
| ND | | | | | | |
| NE | 0 | 3 | 22 | 1 | 66 | 8 |
| SD | 0 | 0 | 34 | 0 | 66 | 0 |
| **Midwest** | **9** | **29** | **19** | **4** | **22** | **18** |
| IA | 0 | 0 | 0 | 8 | 70 | 22 |
| IL | 3 | 2 | 10 | 11 | 66 | 8 |
| IN | 0 | 0 | 47 | 0 | 37 | 16 |
| MI | 29 | 28 | 3 | 1 | 1 | 38 |
| MN | 10 | 1 | 44 | 8 | 10 | 26 |
| MO | 0 | 93 | 2 | 0 | 4 | 0 |
| OH | 1 | 4 | 39 | 14 | 13 | 29 |
| WI | 0 | 2 | 13 | 0 | 84 | 1 |
| **Mountain** | **1** | **1** | **19** | **4** | **57** | **18** |
| AZ | 0 | 0 | 21 | 5 | 56 | 19 |
| CO | 0 | 1 | 9 | 2 | 76 | 12 |
| ID | 0 | 1 | 25 | 10 | 18 | 47 |
| MT | 10 | 10 | 73 | 5 | 1 | 1 |
| NV | 0 | 0 | 51 | 0 | 0 | 49 |
| UT | 2 | 4 | 1 | 0 | 85 | 7 |
| WY | | | | | | |
| **Northeast** | **4** | **0** | **23** | **2** | **36** | **34** |
| CT | 0 | 0 | 36 | 5 | 54 | 5 |
| DE | 0 | 0 | 0 | 5 | 5 | 90 |
| MA | 0 | 0 | 37 | 5 | 45 | 12 |
| MD | 0 | 0 | 11 | 5 | 48 | 37 |
| ME | 0 | 5 | 26 | 0 | 69 | 0 |
| NH | 0 | 0 | 10 | 0 | 90 | 0 |
| NJ | 0 | 0 | 12 | 2 | 61 | 25 |
| NY | 43 | 2 | 8 | 0 | 42 | 5 |
| PA | 0 | 0 | 56 | 1 | 25 | 19 |
| RI | 1 | 1 | 5 | 4 | 26 | 64 |
| VT | 0 | 0 | 55 | 0 | 45 | 0 |
| **Pacific** | **20** | **17** | **15** | **4** | **18** | **26** |
| AK | 0 | 0 | 0 | 0 | 0 | 100 |
| CA | 26 | 16 | 13 | 4 | 19 | 22 |
| HI | 3 | 0 | 1 | 3 | 5 | 87 |
| OR | 0 | 7 | 3 | 2 | 86 | 2 |
| WA | 0 | 43 | 52 | 0 | 4 | 1 |
| **Southcentral** | **5** | **11** | **25** | **6** | **34** | **20** |
| AR | 0 | 0 | 40 | 0 | 18 | 42 |
| LA | 7 | 1 | 43 | 9 | 27 | 14 |
| NM | 0 | 2 | 14 | 3 | 18 | 63 |
| OK | 0 | 0 | 0 | 0 | 100 | 0 |
| TX | 5 | 14 | 19 | 5 | 36 | 21 |
| **Southeast** | **7** | **11** | **16** | **7** | **39** | **20** |
| AL | 3 | 1 | 49 | 1 | 18 | 28 |
| FL | 5 | 15 | 12 | 10 | 34 | 25 |
| GA | 13 | 2 | 21 | 2 | 54 | 8 |
| MS | 0 | 2 | 40 | 14 | 5 | 40 |
| SC | 0 | 3 | 40 | 0 | 40 | 18 |
| **Grand Total** | **10** | **20** | **17** | **5** | **28** | **20** |

## Irrigation Water Sources and Application Methods Used

Use of water resources for irrigation is becoming an increasingly important issue in agriculture. Respondents were asked to indicate the percentage of water used for irrigation that was obtained from the following sources: natural surface, recaptured sources, city (municipal) water supplies, and groundwater wells. Overall, 55 percent of respondents indicated that groundwater wells were a source of water for their irrigation, followed by city water supplies (27%), natural surface water (23%), recaptured sources (10%), and reclaimed water (4%), as shown in Figure 7. Note that the sum of these sources exceeds 100 percent because respondents were allowed to indicate multiple sources. Among grower firms, a higher share of firms reported using groundwater wells (65%) and surface water (32%), while a lower share used city water (19%). On the other hand, a higher share of plant dealer firms reported using well (53%) and city water (40%).

The survey data on water sources were weighted by annual sales level to estimate the distribution of total water volume used by source, as shown in Figure 8. Groundwater wells represented 53 percent of total water used, followed by city water (21%), natural surface water (14%), recaptured (11%) and reclaimed (1%). Again, grower firms had a higher reliance on wells (56%), as well as recaptured (20%), while plant dealer firms used a significantly greater volume of city water (49%).

Survey respondents were also asked about irrigation water application methods used, including overhead sprinklers, drip, sub-irrigation (ebb/flood), hand watering, and other methods. A majority (53%) of respondents reported using overhead sprinkler irrigation, followed by drip irrigation (37%), sub-irrigation (5%), and other unspecified methods (20%), as shown in Figure 9. Among Internet survey respondents, 56 percent of firms also indicated using hand watering. Again, note that respondents were allowed to choose more than one water source. Grower firms tended to use overhead (69%) and drip irrigation (49%) more than plant dealer firms (48% and 30%, respectively). The percentage of firms using water-conserving drip irrigation remained about the same as in the previous survey in 2009.

In terms of volume of water used, based on sales-weighted data, overhead irrigation represented nearly half (49%) of total use, followed by drip irrigation (23%), hand watering (17%), sub-irrigation (4%), and other methods (7%), as shown in Figure 10.

State and region level results on the percentage of respondents using different water sources and application methods are shown in Table 11. A number of states had over 70 percent of using wells (MN, AZ, MT, WY, ME, NH, RI, AR, LA, NM, AL), while other states had less than 30 percent of respondents using wells (KY, ND, AK, OR). States in which over half of firms used city water for irrigation were KY, TN, KS, UT, CA, HI, WA. States with the highest percentage of firms using natural surface water were AK (100%), VA (50%) and CT (44%). States in which 20 percent or more of firms used either recaptured or reclaimed water were CT, VA, WA and NM. States with over 70 percent of firms using overhead water irrigation were NC, AZ, MT, UT, CT, NH, HI, LA and AL. States with 50 percent or more of firms using drip irrigation were SD, AZ, MT, NV, CT, MD, NH, AK, CA, AR, and OK. Sub-irrigation was used by an above-average percentage of firms in SD, IN, AZ and NM,

while hand watering and other unspecified irrigation methods were used by a higher percentage of firms in MO, CO, MT, WY, DE, ME, AR and TX (Table 11).

A new question in the 2014 survey asked about use of "smart" irrigation, i.e. systems using soil moisture or weather sensors to control irrigation, and apply water only when actually needed by plants. Overall, about 18 percent of respondents reported using this technology. States in which at least half of respondents were using smart irrigation systems were New Hampshire and Oklahoma (Table 11).

Trends over time in water use for irrigation are also important for measuring efforts toward resource conservation in the industry. Approximately 69 percent of all firms reported that their water use per acre has remained the same over the past five years, while 13 percent responded that is has increased, and 19 percent said it has decreased (Figure 11). Among grower firms, a slightly larger share of respondents said that water use intensity has decreased (25%), while a higher percentage of plant dealer firms had water use remain the same (75%). States in which a third or more of firms decreased water use were Arizona, Maryland, while states in which half or more firms increased water use were Alaska, Hawaii, Arkansas and Oklahoma (Table 11).

**Figure 7.** Irrigation water sources used by U.S. Green Industry firms in 2013

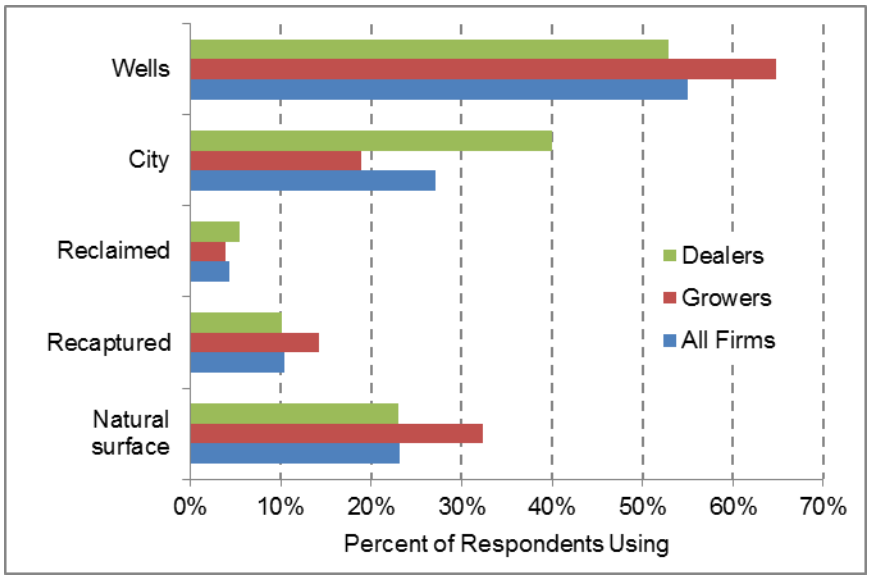


**Figure 8.** Distribution of irrigation water volume used by source for U.S. Green Industry firms in 2013

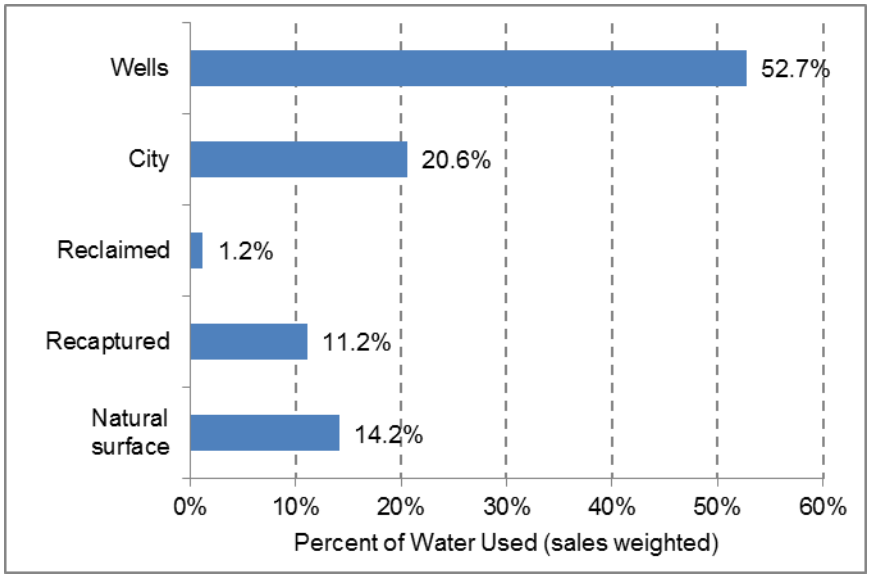



**Figure 9.** Irrigation application methods used by U.S. Green Industry firms in 2013

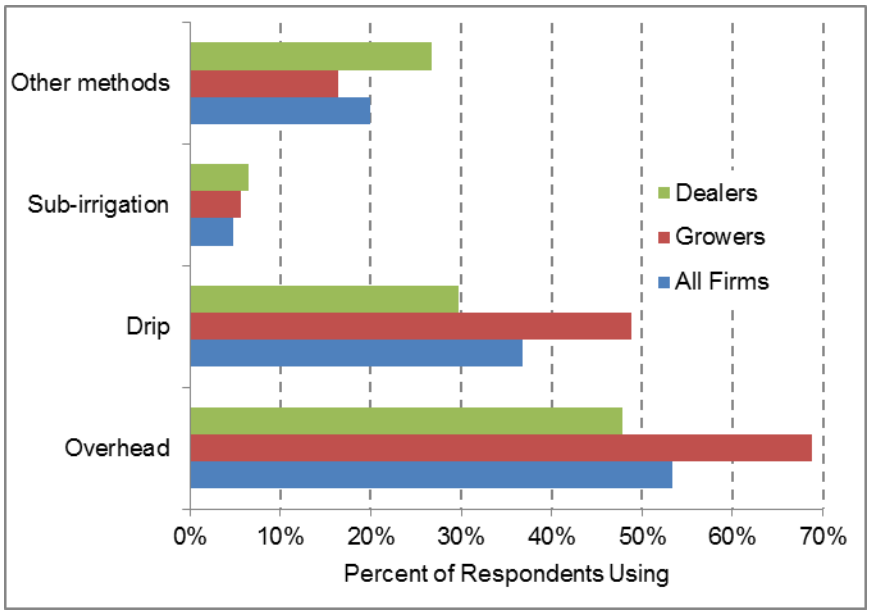


**Figure 10.** Distribution of irrigation water use by application method for U.S. Green Industry firms in 2013

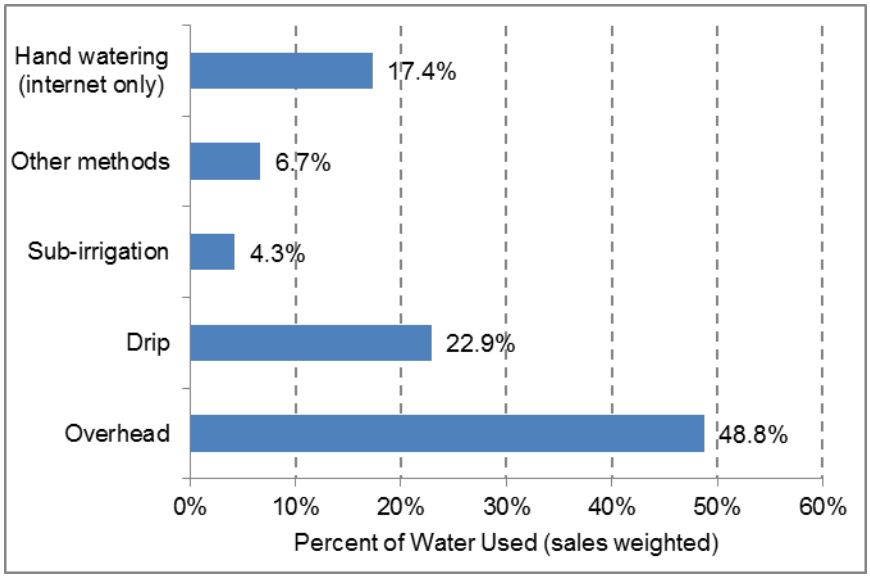



**Figure 11.** Distribution of change in irrigation water use per acre for U.S. Green Industry firms in 2013

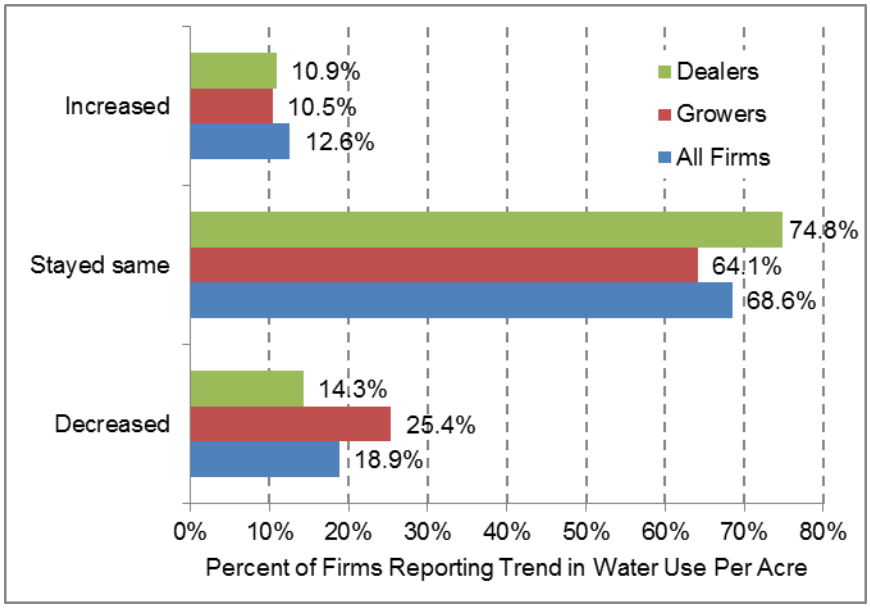


**Table 11.** Irrigation water sources and application methods used by Green Industry firms in U.S. states and regions in 2013

| Region, State | Irrigation Water Sources | | | | | Irrigation Application Methods | | | | Water Use Per Acre Change Last 5 Years | | | Use "Smart" irrigation systems |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Natural surface | Recap-tured | Re-claimed | City | Wells | Over-head | Drip | Sub-irrigation | Other methods | De-creased | Stayed same | In-creased | |
| | | | | | | Percent of Firms Using | | | | | | | |
| **Appalachian** | **34** | **13** | **4** | **30** | **51** | **63** | **37** | **4** | **19** | **18** | **70** | **12** | **14** |
| KY | 38 | 10 | 5 | 52 | 26 | 57 | 40 | 2 | 17 | 6 | 76 | 18 | 26 |
| NC | 37 | 16 | 6 | 13 | 65 | 69 | 37 | 3 | 21 | 21 | 67 | 12 | 13 |
| TN | 22 | 9 | 4 | 51 | 44 | 56 | 36 | 9 | 18 | 19 | 69 | 11 | 10 |
| VA | 50 | 21 | 0 | 11 | 57 | 61 | 43 | 0 | 14 | 14 | 77 | 9 | 12 |
| WV | 27 | 0 | 0 | 47 | 27 | 60 | 20 | 7 | 27 | 17 | 75 | 8 | 23 |
| **Great Plains** | **13** | **9** | **6** | **46** | **42** | **41** | **39** | **7** | **19** | **12** | **64** | **24** | **15** |
| KS | 12 | 4 | 0 | 56 | 32 | 48 | 44 | 8 | 20 | 10 | 70 | 20 | 5 |
| ND | 33 | 0 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 50 | 0 |
| NE | 15 | 13 | 10 | 46 | 48 | 38 | 35 | 6 | 19 | 11 | 65 | 24 | 22 |
| SD | 0 | 11 | 0 | 22 | 56 | 56 | 56 | 11 | 22 | 25 | 50 | 25 | 14 |
| **Midwest** | **23** | **9** | **4** | **23** | **53** | **49** | **33** | **5** | **20** | **20** | **69** | **11** | **13** |
| IA | 29 | 4 | 0 | 29 | 33 | 46 | 21 | 4 | 29 | 17 | 61 | 22 | 11 |
| IL | 31 | 13 | 4 | 16 | 64 | 51 | 36 | 2 | 27 | 27 | 61 | 12 | 12 |
| IN | 24 | 15 | 11 | 38 | 39 | 30 | 25 | 11 | 16 | 14 | 74 | 12 | 14 |
| MI | 21 | 4 | 1 | 19 | 63 | 66 | 40 | 1 | 21 | 28 | 63 | 10 | 8 |
| MN | 10 | 10 | 4 | 15 | 73 | 65 | 42 | 4 | 21 | 15 | 75 | 10 | 20 |
| MO | 16 | 6 | 3 | 32 | 45 | 42 | 29 | 6 | 32 | 8 | 79 | 13 | 16 |
| OH | 35 | 8 | 1 | 19 | 39 | 53 | 36 | 5 | 16 | 21 | 74 | 5 | 12 |
| WI | 16 | 10 | 4 | 20 | 65 | 33 | 27 | 6 | 8 | 15 | 68 | 18 | 17 |
| **Mountain** | **25** | **4** | **1** | **38** | **48** | **58** | **43** | **4** | **28** | **20** | **70** | **10** | **18** |
| AZ | 33 | 17 | 0 | 33 | 83 | 100 | 83 | 17 | 0 | 40 | 60 | 0 | 17 |
| CO | 36 | 5 | 5 | 41 | 36 | 55 | 36 | 5 | 36 | 21 | 68 | 11 | 16 |
| ID | 26 | 0 | 0 | 17 | 57 | 43 | 35 | 4 | 26 | 25 | 65 | 10 | 15 |
| MT | 25 | 0 | 0 | 25 | 75 | 75 | 50 | 0 | 50 | 0 | 67 | 33 | 33 |
| NV | 0 | 0 | 0 | 33 | 50 | 33 | 50 | 0 | 33 | 0 | 100 | 0 | 33 |
| UT | 16 | 5 | 0 | 68 | 32 | 74 | 47 | 0 | 21 | 19 | 69 | 13 | 15 |
| WY | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 100 | 0 | 100 | 0 | 0 |
| **Northeast** | **23** | **8** | **2** | **16** | **62** | **51** | **36** | **5** | **24** | **14** | **73** | **13** | **12** |
| CT | 44 | 25 | 0 | 31 | 44 | 75 | 56 | 6 | 25 | 29 | 64 | 7 | 20 |
| DE | 19 | 6 | 6 | 6 | 88 | 31 | 31 | 6 | 50 | 29 | 57 | 14 | 13 |
| MA | 11 | 11 | 6 | 22 | 50 | 67 | 17 | 6 | 22 | 13 | 80 | 7 | 13 |
| MD | 33 | 17 | 0 | 13 | 63 | 67 | 50 | 8 | 17 | 33 | 48 | 19 | 10 |
| ME | 22 | 4 | 0 | 15 | 70 | 52 | 33 | 4 | 33 | 8 | 83 | 8 | 24 |
| NH | 0 | 0 | 0 | 0 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 0 | 100 |
| NJ | 25 | 5 | 3 | 8 | 72 | 75 | 41 | 5 | 15 | 15 | 67 | 17 | 10 |
| NY | 21 | 10 | 5 | 26 | 50 | 41 | 35 | 6 | 18 | 11 | 71 | 18 | 14 |
| PA | 20 | 5 | 0 | 9 | 67 | 52 | 36 | 5 | 31 | 13 | 79 | 8 | 9 |
| RI | 38 | 13 | 0 | 25 | 75 | 63 | 38 | 0 | 0 | 29 | 43 | 29 | 29 |
| VT | 38 | 8 | 0 | 15 | 69 | 15 | 15 | 0 | 8 | 18 | 82 | 0 | 9 |
| **Pacific** | **16** | **15** | **9** | **50** | **40** | **49** | **38** | **4** | **17** | **23** | **60** | **17** | **20** |
| AK | 100 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 100 | 0 |
| CA | 8 | 12 | 8 | 55 | 51 | 63 | 50 | 3 | 28 | 30 | 56 | 14 | 18 |
| HI | 0 | 20 | 0 | 60 | 40 | 80 | 20 | 0 | 0 | 20 | 20 | 60 | 0 |
| OR | 24 | 11 | 7 | 37 | 24 | 31 | 28 | 7 | 6 | 13 | 74 | 13 | 22 |
| WA | 23 | 22 | 11 | 51 | 34 | 35 | 25 | 3 | 8 | 12 | 67 | 21 | 28 |
| **Southcentral** | **23** | **15** | **4** | **38** | **57** | **61** | **38** | **4** | **30** | **15** | **67** | **18** | **15** |
| AR | 25 | 0 | 0 | 0 | 75 | 50 | 50 | 0 | 50 | 0 | 25 | 75 | 0 |
| LA | 24 | 16 | 3 | 30 | 70 | 78 | 24 | 5 | 19 | 14 | 78 | 8 | 14 |
| NM | 20 | 20 | 0 | 20 | 80 | 50 | 40 | 20 | 30 | 10 | 80 | 10 | 20 |
| OK | 33 | 11 | 11 | 33 | 56 | 11 | 56 | 0 | 11 | 0 | 50 | 50 | 50 |
| TX | 22 | 16 | 4 | 44 | 50 | 61 | 40 | 3 | 34 | 17 | 65 | 17 | 13 |
| **Southeast** | **22** | **10** | **5** | **24** | **59** | **54** | **38** | **5** | **15** | **23** | **68** | **9** | **28** |
| AL | 23 | 10 | 3 | 23 | 74 | 71 | 45 | 3 | 29 | 19 | 71 | 10 | 10 |
| FL | 23 | 10 | 5 | 15 | 69 | 60 | 41 | 4 | 16 | 26 | 67 | 7 | 28 |
| GA | 20 | 11 | 7 | 40 | 34 | 40 | 32 | 7 | 9 | 21 | 64 | 16 | 32 |
| MS | 14 | 11 | 0 | 29 | 50 | 54 | 39 | 4 | 21 | 17 | 75 | 8 | 17 |
| SC | 25 | 12 | 1 | 43 | 41 | 43 | 26 | 1 | 9 | 11 | 75 | 15 | 38 |
| **Grand Total** | **23** | **10** | **4** | **27** | **55** | **53** | **37** | **5** | **20** | **19** | **69** | **13** | **18** |

Note: respondents allowed to choose any that apply, i.e. values do not sum to 100%.

## Integrated Pest Management Practices

Integrated Pest Management (IPM) is commonly hailed as a component of Best Management Practices for agriculture that recognizes its ecological context, and seeks to reduce application of toxic chemicals, and reduce impacts on non-pest organisms. Respondents were asked to select from a list of 22 possible IPM practices that they routinely follow. The percentage of Green Industry firms reporting using these practices are shown in Figure 12. The most common IPM practices used in 2013 were removal of pest-infested plants (72%), cultivation/hand weeding (62%), spot treatment with pesticides (53%), elevating or spacing plants for air circulation (47%), inspecting incoming stock (46%), and alternating pesticides to avoid chemical resistance (42%). A second tier of practices followed by at least 20 percent of firms were using mulches to suppress weeds (36%), ventilating greenhouses (34%), managing irrigation to reduce pests (31%), adjusting fertilization rates (27%), disinfecting benches or ground covers (26%), using pest-resistant plant varieties (25%), adjusting pesticide application to protect beneficial organisms (23%), and identification of beneficial insects (23%). A third group of practices used by at least 10 percent of firms were monitoring pest populations with tarp or sticky traps (19%), using bio-pesticides or lower toxicity materials (15%), using beneficial insects (15%), keeping pest activity records (14%). Finally, the least commonly used IPM practices were using screening or barriers to exclude pests (8%), soil solarization or sterilization (6%), treating retention pond water (3%), and using sanitized water foot baths (2%). IPM Practices that were used more frequently by growers compared to plant dealers or all firms included spot treatment with pesticides, managing irrigation to reduce pests, adjusting fertilization rates, alternative pesticides to avoid chemical resistance, disinfecting benches or ground covers, and keeping pest activity records (Figure 12).

Table 12 presents the detailed results for percentage of respondent using various IPM practices by region and state. Differences in the prevalence of these practices across states presumably reflects pest pressures, agroclimatic factors, pesticide regulations, crop mix, and management knowledge and experience. A few states had 100 percent adoption of all or nearly all IPM practices, including Indiana, Wisconsin, Rhode Island, Vermont, Alaska, Hawaii, Oregon, Washington, Georgia, and South Carolina.

**Figure 12.** Integrated pest management (IPM) practices used by U.S. Green Industry growers, dealers and all firms in 2013

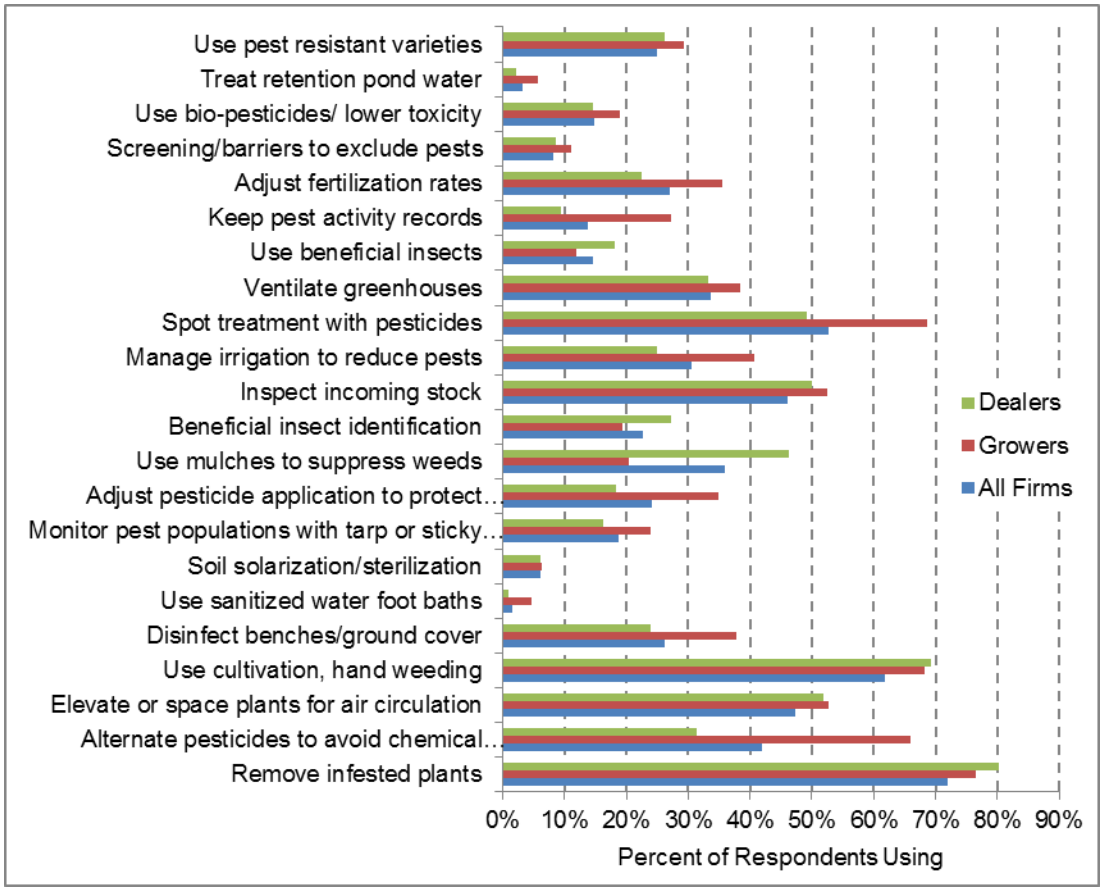


**Table 12.** Integrated pest management (IPM) practices used by Green Industry firms in U.S. states and regions in 2013

| Region, State | Remove infested plants | Alternate pesticides to avoid chemical resistance | Elevate or space plants for air circulation | Use cultivation, hand weeding | Disinfect benches/ ground cover | Use sanitized water foot baths | Soil solarization/sterilization | Monitor pest populations | Adjust pesticide application to protect beneficials | Use mulches to suppress weeds | Beneficial insect identification |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Percent of Firms Using | | | | | |
| **Appalachian** | **81** | **66** | **62** | **77** | **48** | **25** | **27** | **41** | **48** | **43** | **39** |
| KY | 81 | 79 | 74 | 79 | 74 | 55 | 55 | 60 | 55 | 67 | 55 |
| NC | 78 | 60 | 52 | 72 | 34 | 4 | 7 | 28 | 40 | 30 | 25 |
| TN | 88 | 82 | 76 | 86 | 65 | 51 | 54 | 59 | 62 | 60 | 55 |
| VA | 79 | 46 | 61 | 75 | 36 | 11 | 11 | 32 | 36 | 29 | 29 |
| WV | 87 | 33 | 53 | 73 | 40 | 13 | 7 | 27 | 53 | 40 | 53 |
| **Great Plains** | **88** | **67** | **73** | **79** | **61** | **48** | **52** | **60** | **60** | **78** | **58** |
| KS | 80 | 28 | 44 | 52 | 28 | 8 | 20 | 16 | 12 | 56 | 24 |
| ND | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| NE | 92 | 88 | 85 | 90 | 79 | 73 | 73 | 81 | 88 | 90 | 79 |
| SD | 89 | 56 | 78 | 89 | 44 | 11 | 11 | 56 | 33 | 67 | 22 |
| **Midwest** | **88** | **61** | **65** | **77** | **49** | **32** | **35** | **47** | **48** | **59** | **46** |
| IA | 96 | 54 | 46 | 71 | 21 | 0 | 4 | 13 | 17 | 63 | 13 |
| IL | 80 | 40 | 56 | 75 | 27 | 5 | 4 | 20 | 27 | 38 | 22 |
| IN | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| MI | 84 | 42 | 47 | 63 | 27 | 1 | 4 | 28 | 29 | 45 | 25 |
| MN | 83 | 38 | 58 | 73 | 25 | 0 | 19 | 25 | 25 | 42 | 15 |
| MO | 87 | 55 | 52 | 61 | 32 | 3 | 6 | 35 | 29 | 42 | 29 |
| OH | 78 | 46 | 42 | 61 | 24 | 1 | 7 | 22 | 18 | 34 | 26 |
| WI | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| **Mountain** | **78** | **59** | **60** | **74** | **41** | **19** | **25** | **35** | **37** | **44** | **37** |
| AZ | 83 | 100 | 33 | 100 | 33 | 0 | 0 | 33 | 33 | 17 | 0 |
| CO | 82 | 55 | 55 | 59 | 41 | 14 | 14 | 36 | 27 | 23 | 23 |
| ID | 74 | 57 | 57 | 74 | 17 | 4 | 17 | 22 | 43 | 52 | 35 |
| MT | 75 | 50 | 75 | 75 | 50 | 25 | 50 | 0 | 0 | 50 | 75 |
| NV | 50 | 17 | 50 | 67 | 33 | 0 | 0 | 33 | 0 | 33 | 17 |
| UT | 89 | 74 | 84 | 89 | 68 | 53 | 58 | 58 | 63 | 68 | 68 |
| WY | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 100 | 0 |
| **Northeast** | **81** | **54** | **62** | **63** | **45** | **22** | **25** | **40** | **37** | **50** | **36** |
| CT | 81 | 56 | 69 | 75 | 44 | 6 | 13 | 44 | 44 | 69 | 31 |
| DE | 63 | 19 | 25 | 44 | 19 | 6 | 6 | 19 | 25 | 25 | 19 |
| MA | 100 | 39 | 83 | 94 | 44 | 11 | 11 | 56 | 22 | 72 | 22 |
| MD | 75 | 54 | 58 | 71 | 38 | 8 | 8 | 38 | 38 | 46 | 33 |
| ME | 81 | 22 | 44 | 63 | 33 | 4 | 7 | 37 | 15 | 44 | 22 |
| NH | 100 | 0 | 0 | 0 | 100 | 0 | 0 | 100 | 0 | 0 | 100 |
| NJ | 92 | 48 | 44 | 62 | 28 | 5 | 5 | 25 | 28 | 43 | 28 |
| NY | 87 | 66 | 76 | 78 | 69 | 53 | 53 | 62 | 60 | 71 | 61 |
| PA | 73 | 49 | 55 | 47 | 29 | 0 | 8 | 21 | 20 | 31 | 17 |
| RI | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| VT | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| **Pacific** | **90** | **73** | **78** | **88** | **67** | **53** | **57** | **72** | **68** | **69** | **69** |
| AK | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| CA | 79 | 45 | 55 | 76 | 34 | 5 | 13 | 44 | 36 | 37 | 37 |
| HI | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| OR | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| WA | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| **Southcentral** | **73** | **48** | **53** | **76** | **34** | **5** | **9** | **21** | **30** | **34** | **26** |
| AR | 50 | 100 | 50 | 100 | 25 | 0 | 0 | 25 | 75 | 75 | 50 |
| LA | 54 | 41 | 49 | 76 | 24 | 0 | 0 | 5 | 19 | 19 | 8 |
| NM | 80 | 20 | 70 | 90 | 30 | 0 | 20 | 30 | 30 | 60 | 50 |
| OK | 89 | 89 | 89 | 89 | 78 | 67 | 67 | 67 | 56 | 67 | 67 |
| TX | 78 | 47 | 51 | 73 | 34 | 2 | 6 | 22 | 29 | 32 | 26 |
| **Southeast** | **87** | **83** | **81** | **88** | **71** | **61** | **62** | **63** | **73** | **71** | **68** |
| AL | 74 | 58 | 48 | 61 | 29 | 0 | 6 | 13 | 32 | 19 | 10 |
| FL | 82 | 78 | 75 | 85 | 61 | 48 | 50 | 50 | 64 | 62 | 59 |
| GA | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| MS | 93 | 75 | 82 | 75 | 64 | 32 | 36 | 54 | 57 | 50 | 39 |
| SC | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| **Grand Total** | **85** | **66** | **69** | **78** | **55** | **37** | **40** | **50** | **53** | **58** | **50** |

**Table 12 (continued).** Integrated pest management practices followed by Green Industry firms in U.S. states and regions in 2013

| Region, State | Inspect incoming stock | Manage irrigation to reduce pests | Spot treatment with pesticides | Ventilate greenho uses | Use beneficial insects | Keep pest activity records | Adjust fertilization rates | Screening /barriers to exclude pests | Use bio-pesticides/ lower toxicity | Treat retention pond water | Use pest resistant varieties |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Percent of Firms Using | | | | | |
| **Appalachian** | **61** | **47** | **74** | **52** | **33** | **38** | **50** | **29** | **33** | **27** | **41** |
| KY | 74 | 67 | 79 | 69 | 55 | 52 | 57 | 52 | 55 | 52 | 60 |
| NC | 53 | 37 | 69 | 40 | 16 | 24 | 42 | 12 | 14 | 9 | 28 |
| TN | 73 | 60 | 85 | 67 | 55 | 58 | 65 | 55 | 58 | 51 | 59 |
| VA | 54 | 36 | 61 | 46 | 14 | 32 | 36 | 7 | 21 | 18 | 39 |
| WV | 40 | 33 | 80 | 47 | 40 | 40 | 53 | 20 | 27 | 7 | 13 |
| **Great Plains** | **71** | **64** | **76** | **66** | **54** | **54** | **60** | **52** | **54** | **47** | **59** |
| KS | 40 | 28 | 56 | 32 | 16 | 8 | 24 | 16 | 20 | 4 | 20 |
| ND | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| NE | 81 | 79 | 85 | 79 | 75 | 73 | 77 | 73 | 75 | 73 | 77 |
| SD | 89 | 67 | 78 | 78 | 33 | 67 | 56 | 22 | 22 | 11 | 56 |
| **Midwest** | **68** | **50** | **74** | **56** | **42** | **43** | **51** | **35** | **39** | **33** | **50** |
| IA | 58 | 21 | 58 | 29 | 13 | 13 | 25 | 13 | 8 | 8 | 33 |
| IL | 53 | 36 | 67 | 38 | 24 | 20 | 29 | 7 | 24 | 11 | 22 |
| IN | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| MI | 58 | 34 | 61 | 35 | 20 | 16 | 33 | 7 | 17 | 0 | 27 |
| MN | 44 | 17 | 48 | 35 | 17 | 13 | 25 | 8 | 8 | 0 | 25 |
| MO | 65 | 29 | 71 | 52 | 3 | 26 | 45 | 10 | 10 | 3 | 23 |
| OH | 49 | 24 | 70 | 32 | 14 | 19 | 23 | 4 | 7 | 7 | 35 |
| WI | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| **Mountain** | **48** | **46** | **69** | **56** | **38** | **31** | **44** | **27** | **35** | **19** | **36** |
| AZ | 67 | 50 | 100 | 50 | 0 | 0 | 33 | 50 | 17 | 17 | 50 |
| CO | 36 | 32 | 64 | 41 | 23 | 18 | 36 | 9 | 27 | 9 | 18 |
| ID | 26 | 39 | 70 | 43 | 30 | 26 | 43 | 13 | 26 | 9 | 39 |
| MT | 100 | 25 | 50 | 75 | 100 | 0 | 25 | 25 | 25 | 0 | 25 |
| NV | 17 | 50 | 67 | 67 | 33 | 17 | 17 | 33 | 33 | 0 | 0 |
| UT | 84 | 74 | 74 | 84 | 68 | 74 | 74 | 58 | 63 | 53 | 63 |
| WY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Northeast** | **60** | **44** | **60** | **55** | **30** | **32** | **44** | **25** | **31** | **22** | **42** |
| CT | 63 | 50 | 63 | 44 | 25 | 25 | 50 | 13 | 31 | 6 | 44 |
| DE | 38 | 25 | 38 | 25 | 13 | 19 | 25 | 13 | 13 | 6 | 38 |
| MA | 72 | 61 | 44 | 67 | 39 | 28 | 39 | 11 | 39 | 17 | 39 |
| MD | 54 | 46 | 71 | 63 | 21 | 29 | 38 | 8 | 17 | 4 | 33 |
| ME | 56 | 26 | 44 | 44 | 22 | 22 | 37 | 19 | 15 | 4 | 44 |
| NH | 100 | 100 | 0 | 100 | 100 | 0 | 0 | 0 | 0 | 0 | 0 |
| NJ | 46 | 34 | 64 | 34 | 8 | 23 | 28 | 5 | 15 | 7 | 30 |
| NY | 75 | 65 | 73 | 75 | 57 | 57 | 67 | 57 | 59 | 53 | 65 |
| PA | 48 | 25 | 49 | 42 | 10 | 10 | 28 | 4 | 12 | 2 | 22 |
| RI | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| VT | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| **Pacific** | **76** | **72** | **79** | **72** | **66** | **65** | **69** | **59** | **64** | **54** | **63** |
| AK | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| CA | 50 | 42 | 57 | 42 | 31 | 28 | 37 | 16 | 26 | 7 | 25 |
| HI | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| OR | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| WA | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| **Southcentral** | **44** | **37** | **64** | **42** | **22** | **11** | **28** | **10** | **24** | **7** | **22** |
| AR | 25 | 25 | 50 | 25 | 25 | 0 | 25 | 0 | 25 | 0 | 25 |
| LA | 30 | 27 | 70 | 27 | 3 | 5 | 24 | 5 | 8 | 0 | 16 |
| NM | 30 | 30 | 60 | 80 | 50 | 0 | 20 | 30 | 20 | 0 | 10 |
| OK | 78 | 89 | 89 | 89 | 67 | 67 | 78 | 56 | 67 | 67 | 67 |
| TX | 48 | 37 | 60 | 41 | 22 | 9 | 27 | 7 | 26 | 5 | 22 |
| **Southeast** | **78** | **76** | **85** | **73** | **64** | **67** | **73** | **63** | **66** | **62** | **69** |
| AL | 48 | 26 | 71 | 42 | 10 | 19 | 32 | 3 | 6 | 3 | 23 |
| FL | 72 | 69 | 79 | 62 | 52 | 56 | 65 | 52 | 55 | 50 | 60 |
| GA | 99 | 99 | 100 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| MS | 57 | 68 | 75 | 75 | 36 | 46 | 46 | 32 | 43 | 39 | 39 |
| SC | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| **Grand Total** | **67** | **57** | **74** | **60** | **45** | **46** | **55** | **41** | **45** | **38** | **51** |

## Interregional Trade of Plant Products

Information was collected in the survey on sales of plants products by destination state or country. The home state of the nursery was listed as the first option for a destination state since this was the dominant practice of all states in previous surveys. In most cases, the weighted percentage of sales to buyers within the nursery's home state was by far the largest. Inter-regional trade flows of products are summarized in Figure 13, and trade flows for individual states and regions is presented in Table 13. Regions with the largest share of product sales to other regions were the Appalachian (36%), Mountain (25%), and Southeast (19%), followed by the Southcentral (12%), Pacific (11%), and Northeast (10%), while the Midwest and Great Plains regions had very low amounts. Individual states with the largest share of products sold to other regions were Alaska (94%), Delaware (56%), Arkansas (48%), Virginia (46%), North Carolina (42%), Tennessee (40%), New Mexico (40%), Missouri (37%), and Colorado (37%). International exports represented only 1.0 percent of overall sales, down from 3.7 percent in the 2008 survey. The state of New Mexico had the highest share of international sales (39%), followed by Alaska (13%), Florida (5%), and Delaware (5%). Foreign trading partner countries for U.S. Green Industry products were, in order of value reported: Thailand, Japan, Taiwan, Russia, Canada, Costa Rica, Turks & Caicos, St. Vincent, China, Bahamas, Singapore, Holland, St. Maarten, Anguilla, and Korea.

**Figure 13.** Sales of plant products outside of home region by U.S. Green Industry firms in 2013

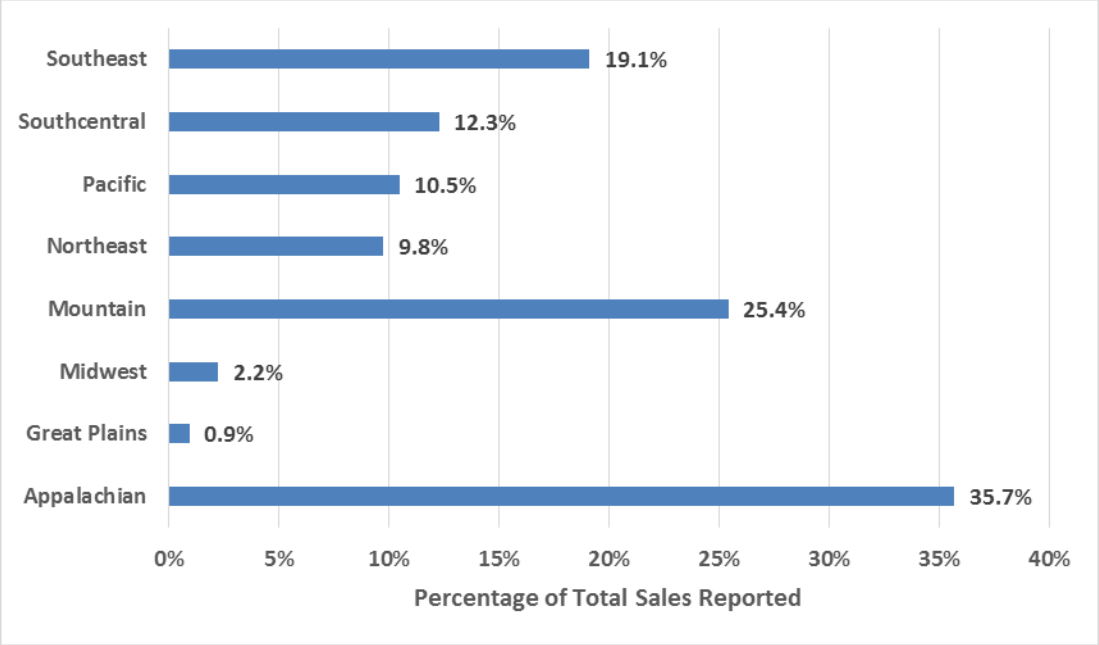


**Table 13.** Inter-regional and international sales by Green Industry firms in U.S. states and regions in 2013

| Headquarters (Home) Region | Destination Region | | | | | | | | | | Total outside home region |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Appal-achian | Great Plains | Mid-west | Mountain | North-east | Pacific | South-central | South-east | Other U.S. | Inter-national | |
| | Percent of Total Sales | | | | | | | | | | |
| **Appalachian** | 64.3 | 0.5 | 4.7 | 0.0 | 12.6 | 0.2 | 4.3 | 12.8 | 0.6 | 0.0 | 35.7 |
| KY | 99.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 |
| NC | 58.4 | 0.9 | 5.3 | 0.0 | 10.4 | 0.0 | 4.5 | 19.6 | 1.0 | 0.0 | 41.6 |
| TN | 59.6 | 0.3 | 8.3 | 0.0 | 9.0 | 0.0 | 11.7 | 11.1 | 0.0 | 0.0 | 40.4 |
| VA | 54.2 | 0.0 | 1.1 | 0.0 | 44.7 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 45.8 |
| WV | 78.3 | 0.0 | 9.8 | 0.0 | 0.8 | 8.3 | 0.0 | 2.6 | 0.1 | 0.0 | 21.7 |
| **Great Plains** | 0.0 | 99.1 | 0.6 | 0.1 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.9 |
| KS | 0.0 | 98.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 2.0 |
| ND | 0.0 | 99.7 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 |
| NE | 0.0 | 99.2 | 0.4 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.8 |
| SD | 0.0 | 95.9 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 |
| **Midwest** | 0.9 | 0.2 | 97.8 | 0.0 | 0.4 | 0.0 | 0.0 | 0.4 | 0.3 | 0.0 | 2.2 |
| IA | 0.7 | 0.1 | 97.3 | 0.0 | 0.4 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 2.7 |
| IL | 0.6 | 0.1 | 99.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 |
| IN | 1.1 | 0.0 | 98.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 |
| MI | 1.2 | 0.0 | 98.5 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 1.5 |
| MN | 0.0 | 1.0 | 98.7 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 1.3 |
| MO | 3.8 | 3.8 | 63.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.0 | 10.4 | 0.0 | 37.0 |
| OH | 3.4 | 0.0 | 90.9 | 0.0 | 5.1 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 9.1 |
| WI | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Mountain** | 0.0 | 0.1 | 0.1 | 74.6 | 0.0 | 2.1 | 12.4 | 5.3 | 5.4 | 0.1 | 25.4 |
| AZ | 0.0 | 0.0 | 0.0 | 73.2 | 0.0 | 10.1 | 16.7 | 0.0 | 0.0 | 0.0 | 26.8 |
| CO | 0.0 | 0.1 | 0.1 | 63.3 | 0.0 | 0.1 | 17.6 | 9.5 | 9.5 | 0.0 | 36.7 |
| ID | 0.0 | 0.0 | 0.1 | 87.3 | 0.0 | 9.0 | 1.3 | 0.0 | 0.0 | 2.3 | 12.7 |
| MT | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NV | 0.0 | 0.0 | 0.0 | 94.3 | 0.0 | 2.8 | 2.8 | 0.0 | 0.0 | 0.0 | 5.7 |
| UT | 0.1 | 0.0 | 1.6 | 96.8 | 0.2 | 0.0 | 0.0 | 0.0 | 1.2 | 0.0 | 3.2 |
| WY | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Northeast** | 1.0 | 0.0 | 6.8 | 0.0 | 90.2 | 0.2 | 0.0 | 0.3 | 0.6 | 0.9 | 9.8 |
| CT | 0.0 | 0.0 | 0.0 | 0.0 | 99.3 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.7 |
| DE | 0.0 | 0.0 | 51.3 | 0.0 | 44.1 | 0.0 | 0.0 | 0.0 | 0.0 | 4.7 | 55.9 |
| MA | 0.0 | 0.0 | 0.0 | 0.0 | 92.5 | 0.0 | 0.0 | 0.0 | 7.5 | 0.0 | 7.5 |
| MD | 8.1 | 0.0 | 0.0 | 0.0 | 91.8 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 8.2 |
| ME | 0.0 | 0.0 | 11.4 | 0.0 | 88.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.4 |
| NH | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NJ | 0.3 | 0.0 | 1.1 | 0.0 | 95.2 | 1.3 | 0.0 | 0.0 | 0.1 | 2.0 | 4.8 |
| NY | 0.0 | 0.0 | 0.4 | 0.0 | 99.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 |
| PA | 1.9 | 0.0 | 0.0 | 0.0 | 95.4 | 0.2 | 0.0 | 1.4 | 1.1 | 0.0 | 4.6 |
| RI | 0.0 | 0.0 | 23.4 | 0.4 | 76.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 23.8 |
| VT | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Pacific** | 0.0 | 0.0 | 0.0 | 6.4 | 0.5 | 89.5 | 0.4 | 1.7 | 1.0 | 0.4 | 10.5 |
| AK | 0.0 | 0.0 | 0.0 | 0.0 | 81.3 | 6.3 | 0.0 | 0.0 | 0.0 | 12.5 | 93.8 |
| CA | 0.0 | 0.0 | 0.0 | 9.5 | 0.0 | 85.4 | 0.7 | 2.7 | 1.6 | 0.2 | 14.6 |
| HI | 0.0 | 0.0 | 0.5 | 0.0 | 0.3 | 94.3 | 0.0 | 0.3 | 0.0 | 4.6 | 5.7 |
| OR | 0.0 | 0.0 | 0.0 | 2.5 | 9.1 | 88.4 | 0.0 | 0.0 | 0.0 | 0.0 | 11.6 |
| WA | 0.0 | 0.0 | 0.0 | 1.2 | 0.0 | 98.8 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 |
| **Southcentral** | 2.0 | 0.4 | 0.4 | 0.0 | 0.0 | 0.2 | 87.7 | 9.0 | 0.0 | 0.3 | 12.3 |
| AR | 3.6 | 23.2 | 20.5 | 0.0 | 0.0 | 0.0 | 52.2 | 0.0 | 0.5 | 0.0 | 47.8 |
| LA | 11.7 | 0.0 | 1.0 | 0.0 | 0.0 | 0.4 | 66.8 | 20.2 | 0.0 | 0.0 | 33.2 |
| NM | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 60.5 | 0.0 | 0.0 | 38.9 | 39.5 |
| OK | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 2.4 | 96.9 | 0.0 | 0.0 | 0.0 | 3.1 |
| TX | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.2 | 92.2 | 7.3 | 0.0 | 0.0 | 7.8 |
| **Southeast** | 4.4 | 0.0 | 0.6 | 0.2 | 5.7 | 2.2 | 3.1 | 80.9 | 0.1 | 3.0 | 19.1 |
| AL | 3.3 | 0.0 | 0.0 | 0.0 | 1.4 | 0.0 | 6.1 | 89.2 | 0.0 | 0.0 | 10.8 |
| FL | 4.5 | 0.0 | 0.9 | 0.3 | 4.2 | 0.4 | 4.1 | 80.6 | 0.1 | 4.9 | 19.4 |
| GA | 2.5 | 0.0 | 0.1 | 0.0 | 9.5 | 5.5 | 0.0 | 82.5 | 0.0 | 0.0 | 17.5 |
| MS | 6.6 | 0.0 | 2.2 | 0.0 | 0.0 | 0.0 | 7.1 | 84.1 | 0.0 | 0.0 | 15.9 |
| SC | 14.8 | 0.0 | 0.1 | 0.0 | 4.5 | 6.3 | 5.5 | 68.7 | 0.0 | 0.0 | 31.3 |
| **Grand Total** | 9.9 | 3.4 | 23.4 | 3.8 | 15.3 | 14.3 | 5.1 | 23.3 | 0.6 | 1.0 | |

## Marketing Practices

Effective marketing of ornamental plant products is critical for survival and success in the Green Industry. Survey results for several key marketing practices are shown in Figure 11. About 78 percent of all Green Industry sales in 2013 were to repeat customers, and for grower firms it was over 90 percent. Negotiated sales, defined as transactions where price and terms were discussed, represented 26 percent of total sales for all firms. Not surprisingly, negotiated sales were a much higher share (42%) for growers, but lower for plant dealer or retailer firms (3%). Brokerage or resale of finished products represented 8 percent of overall Green Industry sales. Forward contracting is an important marketing practice that many producers use as a risk management tool. Forward contract sales accounted for 17 percent of overall sales, 30 percent for grower firms. The most common specific type of buyer for forward contracting was producers, used by 14 percent of wholesaler respondents, followed by retail garden centers (8%), mass merchandisers (5%), and cooperatives (<1%), while miscellaneous other types of buyers were contracted with by 15%, as shown in Figure 12.

Table 14 shows percent of total sales under selected marketing practices by region and state. Repeat customer sales represented 90 percent or more of all sales in 6 states (CO, DE, HI, NH, MN, MO). Negotiated sales represented at least 30 percent of total sales in 12 states. Brokered sales represented 20 percent or more of sales in CT and MI. Forward contract sales accounted for at least 40 percent of sales in 8 states (KY, NC, MI, MN, CO, DE, NH, PA).

**Figure 11.** Marketing practices used by U.S. Green Industry firms in 2013

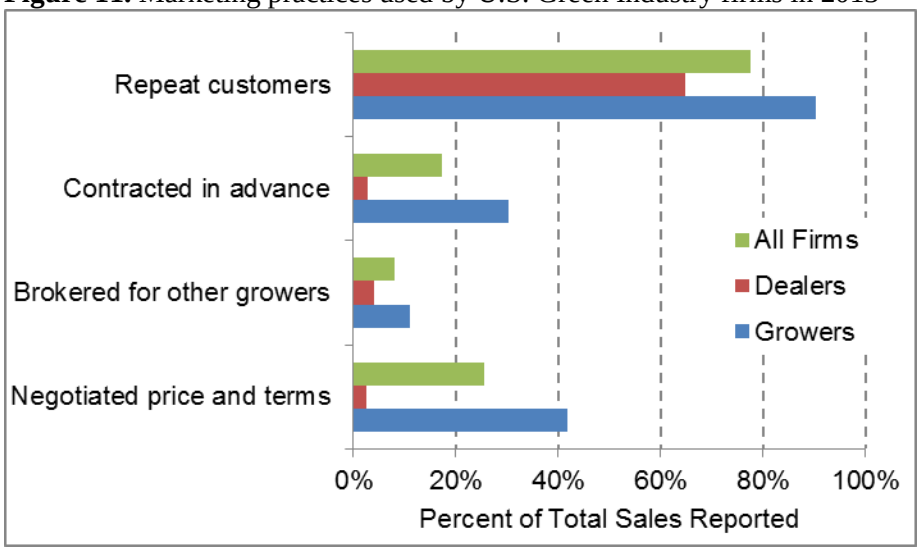


**Figure 12.** Customer types for forward contracting by Green Industry wholesalers in 2013

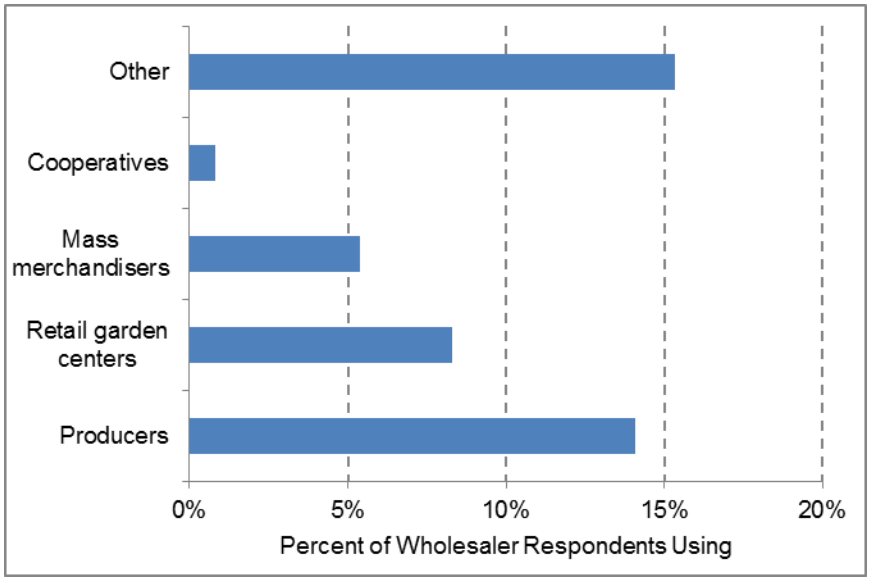


**Table 14.** Marketing practices used by Green Industry firms in U.S. states and regions in 2013

| Region, State | Repeat customers | Negotiated for price and terms | Brokered for other growers | Forward Contracted |
|---|---|---|---|---|
| | | Percent of Total Sales | | |
| **Appalachian** | **78** | **35** | **18** | **38** |
| KY | 76 | 2 | 0 | 48 |
| NC | 82 | 53 | 19 | 48 |
| TN | 59 | 6 | 34 | 15 |
| VA | 87 | 13 | 7 | 2 |
| WV | 74 | 14 | 7 | 22 |
| **Great Plains** | **78** | **1** | **0** | **1** |
| KS | 65 | 1 | 0 | 1 |
| ND | 40 | 0 | 0 | 0 |
| NE | 86 | 0 | 0 | 1 |
| SD | 22 | 12 | 0 | 10 |
| **Midwest** | **80** | **18** | **6** | **20** |
| IA | 52 | 21 | 2 | 6 |
| IL | 82 | 14 | 8 | 13 |
| IN | 75 | 14 | 7 | 13 |
| MI | 89 | 49 | 21 | 48 |
| MN | 92 | 10 | 1 | 55 |
| MO | 94 | 20 | 2 | 2 |
| OH | 82 | 12 | 2 | 21 |
| WI | 65 | 6 | 1 | 5 |
| **Mountain** | **89** | **51** | **3** | **25** |
| AZ | 83 | 15 | 1 | 1 |
| CO | 94 | 81 | 4 | 40 |
| ID | 85 | 14 | 0 | 29 |
| MT | 86 | 11 | 0 | 2 |
| NV | 50 | 11 | 0 | 33 |
| UT | 71 | 1 | 3 | 1 |
| WY | 0 | 0 | 0 | 0 |
| **Northeast** | **75** | **21** | **6** | **17** |
| CT | 73 | 18 | 26 | 6 |
| DE | 90 | 70 | 0 | 80 |
| MA | 85 | 6 | 2 | 10 |
| MD | 53 | 25 | 15 | 3 |
| ME | 68 | 4 | 6 | 19 |
| NH | 90 | 0 | 0 | 60 |
| NJ | 85 | 41 | 8 | 16 |
| NY | 63 | 6 | 3 | 7 |
| PA | 86 | 16 | 5 | 13 |
| RI | 86 | 43 | 17 | 41 |
| VT | 79 | 0 | 0 | 1 |
| **Pacific** | **80** | **25** | **10** | **20** |
| AK | 20 | 0 | 0 | 0 |
| CA | 83 | 37 | 17 | 32 |
| HI | 94 | 18 | 1 | 1 |
| OR | 73 | 3 | 0 | 0 |
| WA | 76 | 9 | 1 | 5 |
| **Southcentral** | **65** | **13** | **9** | **5** |
| AR | 89 | 7 | 7 | 8 |
| LA | 77 | 10 | 11 | 4 |
| NM | 69 | 6 | 6 | 17 |
| OK | 82 | 1 | 0 | 3 |
| TX | 64 | 13 | 8 | 5 |
| **Southeast** | **77** | **34** | **7** | **9** |
| AL | 86 | 13 | 5 | 11 |
| FL | 76 | 31 | 10 | 14 |
| GA | 71 | 23 | 1 | 2 |
| MS | 73 | 8 | 1 | 15 |
| SC | 86 | 66 | 8 | 1 |
| **Grand Total** | **78** | **26** | **8** | **17** |

Note: values are independent measures, i.e. do not sum to 100%.

### Sales Transaction Methods

Respondents were asked to indicate the percentage of annual sales attributable to various transaction methods, including trade show orders, telephone orders, in-person orders, mail orders, and the Internet. The most common transaction method was traditional in-person orders, accounting for 63 percent of sales for all firms, 95 percent of sales for plant dealer firms, and 60 percent of grower firms, as shown in Figure 13. Telephone orders accounted for 31 percent of sales by all firms, but only 2 percent for dealer firms. Internet transactions represented 4.5 percent of sales for all firms, nearly the same as reported for the previous survey for 2008 (4.4%). Trade show orders and mail order sales each represented about 2% of all sales.

Table 15 presents information on sales transaction methods used by region and state. In-person orders accounted for over 90 percent of sales in 11 states, and telephone orders accounted for over 50 percent of sales in 6 states. Internet transactions represented a significant percentage of sales in New Mexico (44%), Alabama (41%), Nevada (23%), Tennessee (22%), and Maryland (19%). Trade shows and mail order accounted for over 10 percent of sales in only 4 state and 3 states, respectively.

**Figure 13.** Distribution of sales by transaction method for U.S. Green Industry firms in 2013

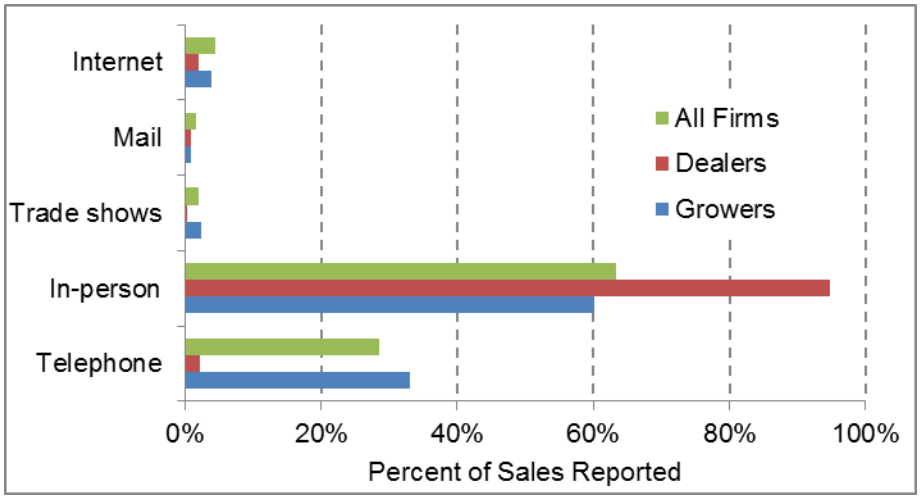


**Table 15.** Distribution of sales by transaction methods for Green Industry firms in U.S. states and regions in 2013

| Region, State | Trade shows | Telephone | In-person | Mail | Internet |
|---|---|---|---|---|---|
| | | | Percent of Total Sales | | |
| **Appalachian** | **4** | **21** | **68** | **2** | **5** |
| KY | 0 | 47 | 51 | 0 | 2 |
| NC | 3 | 12 | 81 | 1 | 2 |
| TN | 4 | 24 | 46 | 4 | 22 |
| VA | 8 | 39 | 43 | 4 | 6 |
| WV | 2 | 9 | 88 | 0 | 1 |
| **Great Plains** | **1** | **3** | **95** | **0** | **1** |
| KS | 0 | 1 | 98 | 0 | 0 |
| ND | | | | | |
| NE | 2 | 10 | 85 | 1 | 2 |
| SD | 4 | 2 | 90 | 4 | 1 |
| **Midwest** | **1** | **22** | **73** | **1** | **2** |
| IA | 0 | 29 | 69 | 1 | 1 |
| IL | 3 | 30 | 64 | 0 | 3 |
| IN | 1 | 28 | 66 | 5 | 1 |
| MI | 0 | 4 | 94 | 0 | 2 |
| MN | 1 | 47 | 46 | 0 | 6 |
| MO | 1 | 0 | 96 | 2 | 1 |
| OH | 1 | 28 | 66 | 0 | 4 |
| WI | 0 | 41 | 57 | 1 | 1 |
| **Mountain** | **2** | **15** | **79** | **0** | **3** |
| AZ | 0 | 45 | 53 | 0 | 2 |
| CO | 3 | 10 | 86 | 0 | 1 |
| ID | 7 | 39 | 43 | 0 | 11 |
| MT | 0 | 2 | 91 | 0 | 7 |
| NV | 36 | 8 | 20 | 13 | 23 |
| UT | 0 | 12 | 87 | 0 | 1 |
| WY | 0 | 0 | 100 | 0 | 0 |
| **Northeast** | **2** | **23** | **70** | **1** | **4** |
| CT | 3 | 12 | 84 | 0 | 1 |
| DE | 5 | 20 | 75 | 0 | 0 |
| MA | 2 | 26 | 51 | 1 | 19 |
| MD | 4 | 10 | 71 | 3 | 13 |
| ME | 0 | 13 | 84 | 1 | 2 |
| NH | 0 | 0 | 100 | 0 | 0 |
| NJ | 4 | 49 | 36 | 0 | 11 |
| NY | 0 | 1 | 98 | 0 | 0 |
| PA | 0 | 40 | 56 | 0 | 3 |
| RI | 2 | 53 | 24 | 17 | 4 |
| VT | 0 | 64 | 36 | 0 | 0 |
| **Pacific** | **0** | **43** | **47** | **6** | **5** |
| AK | 0 | 85 | 5 | 0 | 10 |
| CA | 0 | 57 | 37 | 0 | 6 |
| HI | 0 | 6 | 92 | 0 | 1 |
| OR | 0 | 5 | 9 | 77 | 9 |
| WA | 0 | 4 | 95 | 0 | 1 |
| **Southcentral** | **2** | **23** | **70** | **1** | **4** |
| AR | 16 | 13 | 62 | 3 | 6 |
| LA | 2 | 44 | 45 | 0 | 9 |
| NM | 0 | 17 | 37 | 2 | 44 |
| OK | 0 | 0 | 100 | 0 | 0 |
| TX | 2 | 21 | 73 | 1 | 3 |
| **Southeast** | **3** | **40** | **49** | **1** | **6** |
| AL | 6 | 29 | 23 | 1 | 41 |
| FL | 2 | 34 | 55 | 1 | 8 |
| GA | 1 | 50 | 48 | 0 | 1 |
| MS | 10 | 31 | 57 | 0 | 1 |
| SC | 14 | 58 | 18 | 5 | 4 |
| **Grand Total** | **2** | **28** | **63** | **2** | **4** |

### Advertising Expenditures

Respondents were asked to report the percentage of their total sales allocated to advertising and the percentage of their advertising budget spent on various media forms as shown in Figure 14. Advertising expenditures represented 4.0 percent of total sales for all firms nationally. The most popular advertising media for all firms was the Internet, accounting for 19 percent of the total advertising budget, followed by trade journals (15%), radio/TV (12%), social media such as Facebook, Twitter, Tumbler, etc. (12%), and miscellaneous other unspecified media (14%). For grower firms, 2.8 percent of annual sales were spent on advertising, and the most important media types as a share of the advertising budget were trade journals (57%), trade shows (17%), catalogs (8%), Internet (7%), and social media (5%). For plant dealer firms, 4.5 percent of annual sales were spent on advertising, and the most important media types budgeted were miscellaneous other unspecified media (28%), Internet (27%), yellow pages (12%), social media (10%), and radio/TV (10%). Although the Internet is important in terms of advertising expenditures, it still accounts for a relatively small share (< 5%) of sales transactions (see previous section).

Advertising expenditures and media types used are summarized by region and state in Table 16. There were 6 states in which advertising expenditures represented over 10 percent of annual sales (KS, MO, CO, WY, CT, AK). The Internet represented as much as 80 percent of the advertising budget in Hawaii, and was 40 percent or more of the advertising budget in IN, TN, NV, NM, GA and SC. Social media accounted for 20 percent or more of advertising in TN, NE, CO, WY, DE, and VT. Trade journals accounted for over 80 percent of advertising in MO and AK, while radio/TV accounted for over 70 percent of advertising in KY and UT.

**Figure 14.** Distribution of advertising expenditures by U.S. Green Industry firms in 2013

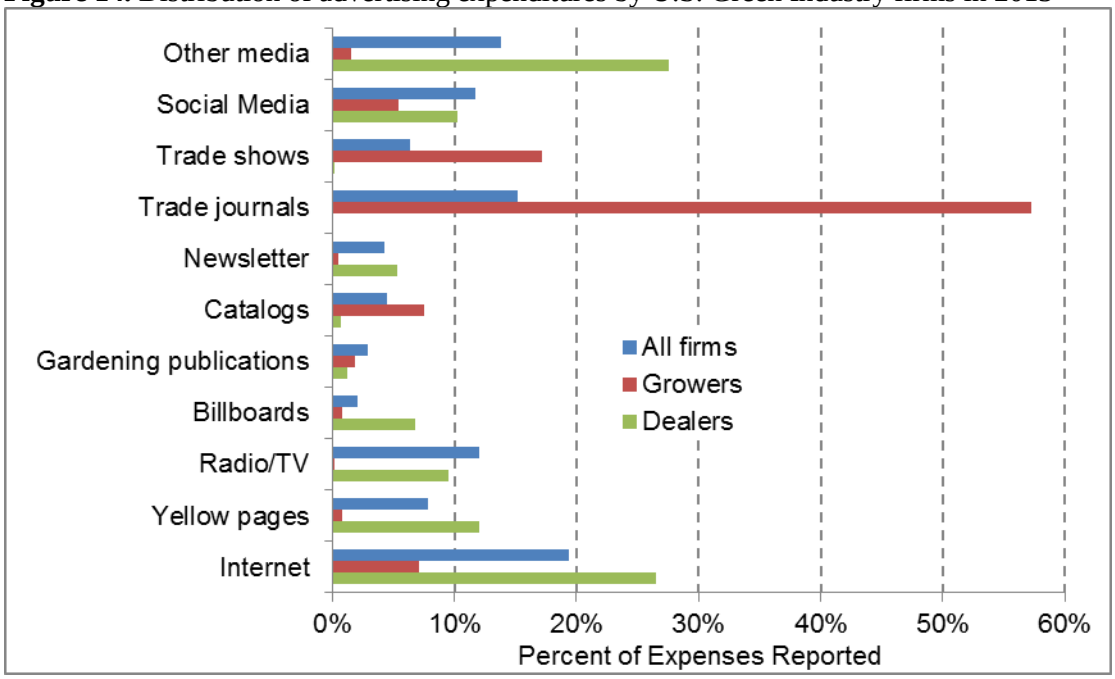


**Table 16.** Share of sales for advertising expenditures, and distribution of advertising expenditures by media type by Green Industry firms in U.S. states and regions in 2013

| Region, State | Total advertising expenditures (percent of sales) | Advertising Media Type (Percent of Total) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Internet | Yellow pages | Radio/ TV | Bill-boards | Garden publi-cations | Catalogs (print or CD) | Trade journals | News-letter | Trade shows | Social media | Other media |
| **Appalachian** | **3** | **17** | **2** | **30** | **0** | **3** | **10** | **3** | **8** | **16** | **8** | **4** |
| KY | 7 | 2 | 0 | 72 | 0 | 4 | 0 | 0 | 19 | 0 | 0 | 1 |
| NC | 1 | 11 | 2 | 11 | 1 | 4 | 24 | 7 | 0 | 30 | 5 | 5 |
| TN | 4 | 53 | 1 | 4 | 0 | 2 | 1 | 0 | 4 | 1 | 27 | 7 |
| VA | 3 | 5 | 6 | 0 | 0 | 0 | 21 | 5 | 1 | 58 | 0 | 3 |
| WV | 2 | 12 | 24 | 37 | 0 | 0 | 3 | 0 | 7 | 0 | 5 | 12 |
| **Great Plains** | **7** | **20** | **4** | **34** | **0** | **0** | **0** | **0** | **1** | **2** | **22** | **15** |
| KS | 12 | 9 | 0 | 55 | 0 | 0 | 0 | 0 | 2 | 3 | 13 | 18 |
| ND | 5 | 0 | 0 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| NE | 5 | 32 | 8 | 13 | 0 | 0 | 0 | 0 | 0 | 1 | 32 | 13 |
| SD | 3 | 7 | 3 | 39 | 0 | 0 | 2 | 0 | 1 | 12 | 2 | 33 |
| **Midwest** | **5** | **15** | **5** | **5** | **0** | **0** | **3** | **49** | **6** | **1** | **3** | **12** |
| IA | 7 | 1 | 15 | 35 | 0 | 0 | 4 | 0 | 1 | 0 | 1 | 42 |
| IL | 3 | 41 | 1 | 1 | 0 | 1 | 27 | 12 | 4 | 4 | 2 | 7 |
| IN | 2 | 78 | 6 | 7 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 4 |
| MI | 3 | 2 | 1 | 6 | 0 | 1 | 1 | 0 | 2 | 1 | 1 | 86 |
| MN | 4 | 31 | 4 | 17 | 3 | 0 | 12 | 0 | 5 | 4 | 1 | 24 |
| MO | 18 | 1 | 0 | 0 | 0 | 0 | 1 | 91 | 1 | 0 | 5 | 0 |
| OH | 2 | 18 | 3 | 23 | 4 | 4 | 5 | 5 | 4 | 23 | 6 | 6 |
| WI | 3 | 32 | 18 | 14 | 0 | 1 | 4 | 0 | 23 | 0 | 0 | 7 |
| **Mountain** | **15** | **1** | **9** | **1** | **0** | **9** | **0** | **0** | **9** | **1** | **45** | **24** |
| AZ | 1 | 24 | 0 | 0 | 0 | 7 | 1 | 13 | 1 | 53 | 0 | 0 |
| CO | 24 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 49 | 21 |
| ID | 3 | 10 | 1 | 8 | 0 | 0 | 16 | 19 | 0 | 43 | 3 | 0 |
| MT | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 98 |
| NV | 6 | 65 | 25 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 0 |
| UT | 4 | 12 | 5 | 70 | 0 | 6 | 0 | 0 | 2 | 0 | 4 | 0 |
| WY | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 0 |
| **Northeast** | **4** | **24** | **1** | **18** | **0** | **5** | **5** | **2** | **1** | **7** | **8** | **30** |
| CT | 11 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 92 |
| DE | 5 | 20 | 0 | 0 | 0 | 20 | 0 | 10 | 0 | 20 | 30 | 1 |
| MA | 2 | 3 | 0 | 6 | 0 | 0 | 48 | 7 | 0 | 13 | 9 | 13 |
| MD | 5 | 10 | 0 | 3 | 0 | 15 | 1 | 2 | 0 | 7 | 1 | 62 |
| ME | 4 | 2 | 10 | 41 | 0 | 0 | 12 | 0 | 6 | 0 | 10 | 20 |
| NH | 3 | | | | | | | | | | | |
| NJ | 1 | 14 | 0 | 0 | 0 | 0 | 37 | 3 | 0 | 35 | 1 | 9 |
| NY | 4 | 43 | 0 | 43 | 0 | 0 | 1 | 0 | 2 | 1 | 6 | 4 |
| PA | 2 | 15 | 6 | 10 | 1 | 1 | 11 | 2 | 4 | 6 | 8 | 35 |
| RI | 2 | 34 | 0 | 11 | 1 | 0 | 2 | 4 | 4 | 38 | 4 | 3 |
| VT | 2 | 31 | 19 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 20 | 29 |
| **Pacific** | **3** | **19** | **9** | **11** | **0** | **3** | **8** | **5** | **4** | **24** | **11** | **7** |
| AK | 50 | 5 | 0 | 0 | 0 | 5 | 0 | 80 | 0 | 5 | 5 | 0 |
| CA | 3 | 20 | 3 | 5 | 0 | 1 | 9 | 7 | 2 | 36 | 12 | 6 |
| HI | 0 | 80 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 |
| OR | 4 | 5 | 29 | 41 | 0 | 11 | 0 | 0 | 0 | 0 | 1 | 11 |
| WA | 2 | 31 | 9 | 0 | 0 | 0 | 11 | 0 | 22 | 1 | 18 | 8 |
| **Southcentral** | **2** | **15** | **8** | **18** | **10** | **1** | **15** | **0** | **4** | **13** | **5** | **12** |
| AR | 2 | 1 | 2 | 2 | 0 | 0 | 24 | 0 | 8 | 60 | 2 | 3 |
| LA | 4 | 3 | 1 | 0 | 36 | 0 | 40 | 0 | 2 | 8 | 3 | 7 |
| NM | 1 | 58 | 0 | 0 | 0 | 0 | 27 | 0 | 0 | 0 | 0 | 15 |
| OK | 4 | 36 | 14 | 17 | 0 | 0 | 1 | 0 | 14 | 0 | 17 | 0 |
| TX | 1 | 18 | 10 | 25 | 0 | 2 | 6 | 0 | 4 | 15 | 5 | 14 |
| **Southeast** | **3** | **31** | **17** | **8** | **7** | **3** | **6** | **3** | **1** | **7** | **6** | **9** |
| AL | 5 | 19 | 0 | 0 | 0 | 3 | 22 | 15 | 10 | 31 | 0 | 0 |
| FL | 4 | 20 | 22 | 11 | 11 | 3 | 2 | 4 | 1 | 8 | 6 | 12 |
| GA | 2 | 54 | 16 | 1 | 4 | 6 | 1 | 2 | 1 | 1 | 6 | 7 |
| MS | 2 | 4 | 3 | 27 | 0 | 2 | 1 | 12 | 25 | 15 | 8 | 2 |
| SC | 4 | 52 | 0 | 7 | 0 | 0 | 24 | 0 | 2 | 7 | 8 | 0 |
| **Grand Total** | **4** | **19** | **8** | **12** | **2** | **3** | **4** | **15** | **4** | **6** | **12** | **14** |

## Trade Show Participation

Trade shows have traditionally been an important venue for marketing in the Green Industry. Survey respondents were asked to indicate the number of trade shows attended annually with and without an exhibit. The overall average number of trade shows attended by all firms in 2013 was 0.8 with an exhibit, and 0.6 without an exhibit, as shown in Table 17. Trade show attendance has declined significantly since the previous survey for 2008, in which the average number of shows attended was 2.27 and 1.79, with and with exhibits, respectively. The states with the highest average number of trade shows attended with an exhibit were Mississippi (2.5), Maryland (2.5), Texas (2.0), Arizona (2.0), and Minnesota (1.8), while the states with an average of at least 1.5 shows attended without an exhibit were RI, HI and IL.

**Table 17.** Average number of trade shows attended by Green Industry firms in U.S. states and regions in 2013

| Region, State | With exhibit | Without exhibit | Region, State | With exhibit | Without exhibit |
|---|---|---|---|---|---|
| **Appalachian** | **1.0** | **0.8** | **Northeast** | **0.9** | **0.5** |
| KY | 0.3 | 1.1 | CT | 1.1 | 0.7 |
| NC | 1.2 | 0.8 | DE | 0.4 | 0.6 |
| TN | 1.0 | 0.7 | MA | 2.5 | 1.4 |
| VA | 1.3 | 0.8 | MD | 0.9 | 0.7 |
| WV | 1.1 | 1.1 | ME | 0.4 | 0.7 |
| **Great Plains** | **0.5** | **0.3** | NH | | |
| KS | 0.3 | 0.8 | NJ | 0.7 | 0.8 |
| ND | 0.5 | 0.0 | NY | 0.6 | 0.4 |
| NE | 0.5 | 0.1 | PA | 1.2 | 0.4 |
| SD | 1.4 | 1.3 | RI | 1.4 | 1.7 |
| **Midwest** | **0.6** | **0.6** | VT | 0.1 | 0.3 |
| IA | 0.3 | 0.4 | **Pacific** | **0.7** | **0.5** |
| IL | 0.9 | 1.8 | AK | 1.0 | 0.0 |
| IN | 0.2 | 0.7 | CA | 1.0 | 0.9 |
| MI | 0.7 | 0.6 | HI | 0.8 | 1.5 |
| MN | 1.8 | 0.4 | OR | 0.2 | 0.3 |
| MO | 1.0 | 0.4 | WA | 0.6 | 0.2 |
| OH | 0.8 | 0.3 | **Southcentral** | **1.5** | **0.5** |
| WI | 0.2 | 0.4 | AR | 0.7 | 0.0 |
| **Mountain** | **1.2** | **0.6** | LA | 0.8 | 0.5 |
| AZ | 2.0 | 1.3 | NM | 0.0 | 0.0 |
| CO | 1.8 | 0.7 | OK | 0.0 | 0.8 |
| ID | 0.6 | 0.6 | TX | 2.0 | 0.5 |
| MT | 0.0 | 0.0 | **Southeast** | **0.7** | **0.6** |
| NV | 1.6 | 0.0 | AL | 0.8 | 0.5 |
| UT | 1.6 | 0.4 | FL | 0.7 | 0.6 |
| WY | | | GA | 0.4 | 0.4 |
| | | | MS | 2.5 | 0.7 |
| | | | SC | 0.8 | 0.6 |
| | | | **Grand Total** | **0.8** | **0.6** |

## Factors Affecting Price Determination, Geographic Expansion and the General Business Environment

To gain insight into the attitudes and motivations of Green Industry managers, survey respondents were asked to indicate the importance of various factors potentially affecting price determination, geographic expansion and issues affecting the industry in general, by rating each of the factors on a scale of 1 to 4, with 4 representing "very important", 3 representing "important", 2 representing "minor importance", and 1 representing "not important".

The eight factors considered as potentially affecting product prices were cost of production, inflation, other grower prices, grade of plants, market demand, product uniqueness, inventory levels, and last year's prices. Cost of production was the factor with the highest average rating score (3.41), followed by grade of plants (3.20), market demand (3.11), product uniqueness (3.09), other grower's prices (2.81), last year's prices (2.58), inventory levels (2.54), miscellaneous other unspecified factors (2.40), and inflation (2.28), as shown in Figure 15. The percentage of respondents that indicated these factors are either "important" or "very important" for product pricing was highest for cost of production (87%), grade of plants (83%) and market demand (79%). Average rating scores of each factor are shown for individual states and regions in Table 18. In general, the results for states were consistent with those for the U.S. as a whole, with minor exceptions.

**Figure 15.** Factors affecting product pricing for U.S. Green Industry firms in 2013

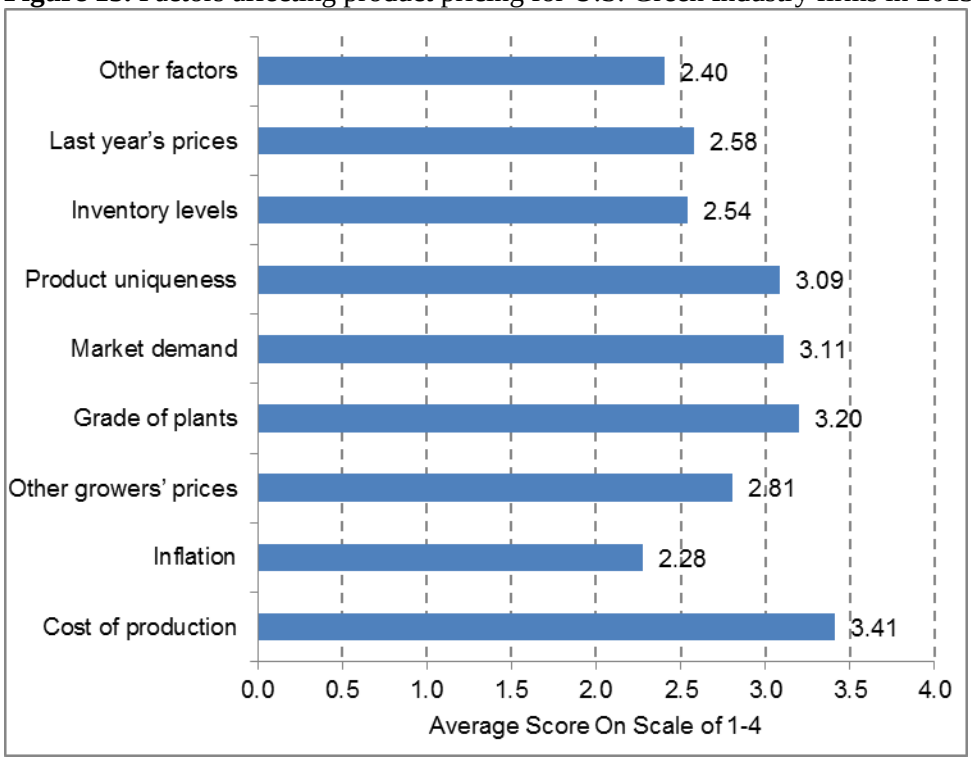


**Table 18.** Factors affecting product pricing for Green Industry firms in U.S. states and regions in 2013

| Region, State | Cost of production | Inflation | Other growers' prices | Grade of plants | Market demand | Product uniqueness | Inventory levels | Last year's prices | Other factors |
|---|---|---|---|---|---|---|---|---|---|
| | Average on Scale of 1-4: 4="very important", 3="important", 2="moderate importance", 1="not important" | | | | | | | | |
| **Appalachian** | **3.5** | **2.4** | **2.8** | **3.3** | **3.2** | **3.0** | **2.5** | **2.7** | **2.5** |
| KY | 3.5 | 2.4 | 2.8 | 3.5 | 3.2 | 3.0 | 2.5 | 2.6 | 1.8 |
| NC | 3.5 | 2.3 | 2.7 | 3.1 | 3.1 | 3.1 | 2.5 | 2.6 | 2.3 |
| TN | 3.6 | 2.6 | 2.7 | 3.3 | 3.2 | 3.1 | 2.5 | 2.6 | 2.7 |
| VA | 3.7 | 2.7 | 3.2 | 3.3 | 3.3 | 2.9 | 2.8 | 3.0 | 2.4 |
| WV | 3.5 | 2.2 | 2.6 | 3.7 | 2.8 | 2.9 | 2.1 | 2.6 | 4.0 |
| **Great Plains** | **3.4** | **2.2** | **2.6** | **3.2** | **3.1** | **3.2** | **2.7** | **2.6** | **2.4** |
| KS | 3.5 | 2.4 | 2.6 | 3.4 | 3.4 | 3.2 | 2.6 | 2.2 | 1.7 |
| ND | 3.5 | 1.5 | 2.0 | 2.5 | 2.0 | 3.5 | 2.5 | 3.0 | |
| NE | 3.2 | 2.2 | 2.7 | 3.3 | 3.1 | 3.2 | 2.8 | 2.8 | 2.8 |
| SD | 3.8 | 2.1 | 2.8 | 2.6 | 2.6 | 3.1 | 2.5 | 2.4 | 1.0 |
| **Midwest** | **3.4** | **2.2** | **2.8** | **3.2** | **3.1** | **3.1** | **2.6** | **2.7** | **2.4** |
| IA | 3.4 | 2.1 | 2.5 | 2.9 | 3.0 | 3.1 | 2.9 | 3.0 | 3.0 |
| IL | 3.1 | 2.1 | 2.8 | 2.9 | 3.2 | 2.9 | 2.6 | 2.6 | 1.0 |
| IN | 3.1 | 2.1 | 2.8 | 3.2 | 3.1 | 2.9 | 2.4 | 2.4 | 1.9 |
| MI | 3.6 | 2.3 | 2.8 | 3.3 | 3.3 | 3.3 | 2.5 | 2.7 | 3.4 |
| MN | 3.5 | 2.3 | 2.8 | 3.1 | 3.2 | 3.2 | 2.6 | 2.7 | 2.7 |
| MO | 3.5 | 2.2 | 2.5 | 3.3 | 2.9 | 3.0 | 2.8 | 2.8 | 2.5 |
| OH | 3.3 | 2.4 | 2.9 | 3.1 | 3.1 | 3.1 | 2.7 | 2.9 | 2.7 |
| WI | 3.5 | 2.4 | 2.9 | 3.4 | 3.0 | 3.3 | 2.6 | 2.7 | 2.2 |
| **Mountain** | **3.3** | **2.2** | **2.7** | **2.9** | **2.9** | **2.9** | **2.3** | **2.5** | **2.6** |
| AZ | 3.0 | 1.8 | 3.0 | 2.2 | 2.3 | 3.2 | 2.0 | 2.7 | |
| CO | 3.2 | 2.1 | 2.8 | 2.9 | 2.9 | 2.4 | 2.4 | 2.5 | 3.5 |
| ID | 3.1 | 2.0 | 2.8 | 3.0 | 3.1 | 3.1 | 2.1 | 2.6 | 2.5 |
| MT | 3.5 | 1.5 | 2.7 | 3.0 | 2.7 | 2.7 | 3.0 | 3.0 | 4.0 |
| NV | 3.7 | 3.0 | 2.3 | 2.7 | 2.5 | 3.0 | 2.0 | 2.3 | |
| UT | 3.6 | 2.4 | 2.5 | 3.1 | 2.9 | 3.2 | 2.6 | 2.5 | 1.0 |
| WY | 4.0 | | 4.0 | | | | 4.0 | | |
| **Northeast** | **3.4** | **2.2** | **2.8** | **3.2** | **3.1** | **3.0** | **2.5** | **2.7** | **2.6** |
| CT | 3.4 | 1.9 | 2.7 | 3.0 | 3.1 | 3.1 | 2.4 | 2.6 | |
| DE | 2.6 | 1.7 | 2.9 | 2.8 | 2.8 | 2.8 | 2.8 | 2.6 | 2.7 |
| MA | 3.3 | 1.8 | 2.9 | 2.7 | 2.9 | 3.3 | 2.3 | 2.2 | 3.0 |
| MD | 3.4 | 2.3 | 2.9 | 2.7 | 2.9 | 2.7 | 2.5 | 2.3 | 2.5 |
| ME | 3.5 | 1.8 | 2.3 | 3.1 | 2.8 | 2.7 | 2.4 | 2.6 | 1.7 |
| NH | 4.0 | 3.0 | 3.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.0 | |
| NJ | 3.6 | 2.3 | 2.9 | 3.5 | 3.2 | 3.0 | 2.6 | 2.5 | 3.0 |
| NY | 3.4 | 2.3 | 2.8 | 3.3 | 3.1 | 3.1 | 2.5 | 2.8 | 2.8 |
| PA | 3.4 | 2.3 | 2.7 | 3.2 | 3.0 | 3.0 | 2.4 | 2.8 | 2.5 |
| RI | 3.4 | 2.4 | 3.1 | 3.3 | 3.3 | 3.0 | 2.7 | 2.1 | 4.0 |
| VT | 3.5 | 2.0 | 2.7 | 3.5 | 3.0 | 3.3 | 2.1 | 2.5 | 1.0 |
| **Pacific** | **3.3** | **2.4** | **3.0** | **3.3** | **3.2** | **3.2** | **2.7** | **2.6** | **2.3** |
| AK | 3.0 | 2.0 | 2.0 | 4.0 | 4.0 | 4.0 | 3.0 | 3.0 | 3.0 |
| CA | 3.5 | 2.4 | 3.1 | 3.2 | 3.3 | 3.2 | 2.8 | 2.7 | 2.7 |
| HI | 3.6 | 2.2 | 3.0 | 3.4 | 3.6 | 3.2 | 3.6 | 2.0 | 4.0 |
| OR | 2.9 | 2.5 | 2.7 | 3.5 | 3.1 | 3.1 | 2.7 | 2.0 | 1.0 |
| WA | 3.2 | 2.3 | 2.9 | 3.1 | 2.9 | 3.1 | 2.3 | 2.5 | 2.3 |
| **Southcentral** | **3.5** | **2.2** | **2.7** | **3.2** | **3.0** | **3.1** | **2.4** | **2.4** | **2.2** |
| AR | 4.0 | 1.8 | 2.5 | 3.8 | 2.8 | 3.3 | 2.8 | 3.0 | |
| LA | 3.6 | 2.3 | 2.7 | 3.1 | 3.2 | 3.1 | 2.4 | 2.3 | 2.3 |
| NM | 2.9 | 1.9 | 2.5 | 3.4 | 2.9 | 3.3 | 2.3 | 2.6 | 1.0 |
| OK | 3.7 | 3.6 | 2.6 | 3.8 | 3.4 | 4.0 | 3.0 | 3.0 | 4.0 |
| TX | 3.5 | 2.1 | 2.8 | 3.1 | 3.0 | 3.0 | 2.4 | 2.4 | 2.3 |
| **Southeast** | **3.4** | **2.3** | **2.9** | **3.2** | **3.2** | **3.1** | **2.6** | **2.4** | **2.3** |
| AL | 3.7 | 2.3 | 2.8 | 2.6 | 2.7 | 2.6 | 2.5 | 2.2 | 2.4 |
| FL | 3.4 | 2.3 | 3.0 | 3.2 | 3.2 | 3.1 | 2.6 | 2.4 | 2.4 |
| GA | 3.3 | 2.2 | 2.7 | 3.2 | 3.0 | 3.1 | 2.5 | 2.5 | 1.6 |
| MS | 3.5 | 2.5 | 3.0 | 3.5 | 3.4 | 3.2 | 2.8 | 2.5 | 1.0 |
| SC | 3.3 | 2.3 | 2.7 | 3.4 | 3.1 | 3.4 | 2.3 | 2.3 | 2.4 |
| **Grand Total** | **3.4** | **2.3** | **2.8** | **3.2** | **3.1** | **3.1** | **2.5** | **2.6** | **2.4** |

Factors considered that potentially limit the geographic range or trading area for Green Industry businesses included debt and equity capital availability, marketing, personnel, production, transportation, and plant offerings. The highest average rating was for transportation (2.94), followed by plant offerings (2.92), production (2.76), marketing (2.43), equity capital (1.91), and debt capital (1.90), as shown in Figure 16. Over two-thirds (66%) of respondents indicated that plant offerings, transportation and production issues were important/ very important. Average rating scores on these factors are presented for states and regions in Table 19.

**Figure 16.** Factors affecting geographic range for U.S. Green Industry firms in 2013

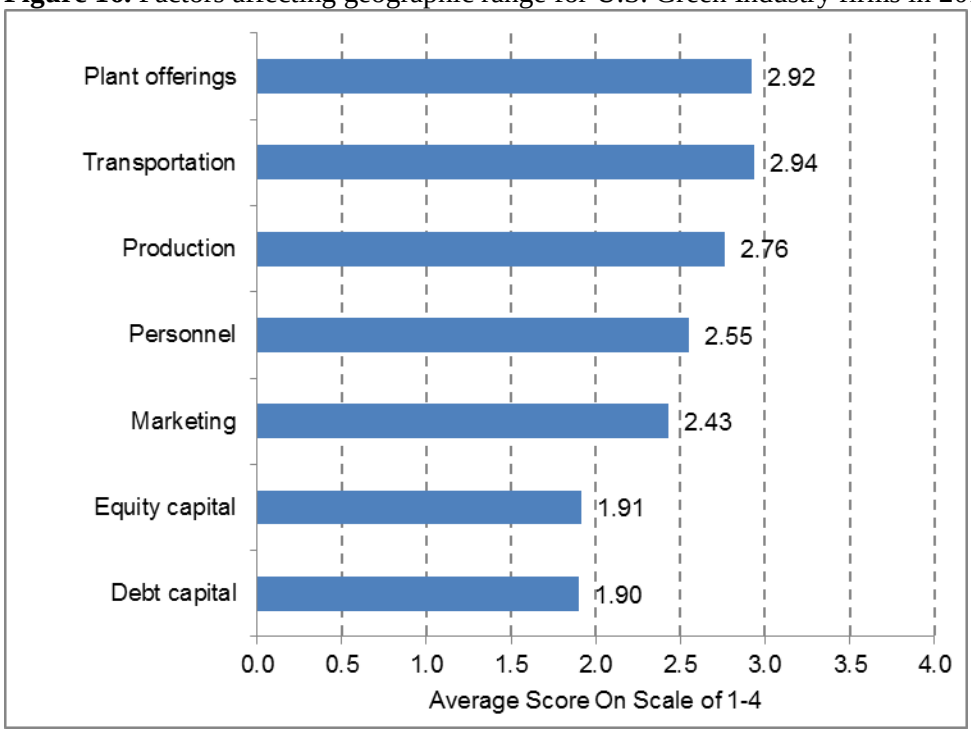


**Table 19.** Factors affecting geographic range for Green Industry firms in U.S. states and regions in 2013

| Region, State | Debt capital | Equity capital | Marketing | Personnel | Production | Transportation | Plant offerings |
|---|---|---|---|---|---|---|---|
| | Average on Scale of 1-4: 4=”very important”, 3=”important”, 2=”moderate importance”, 1=”not important” | | | | | | |
| **Appalachian** | **1.9** | **1.9** | **2.5** | **2.5** | **2.9** | **3.0** | **2.9** |
| KY | 2.1 | 2.2 | 2.9 | 2.8 | 3.2 | 2.9 | 3.4 |
| NC | 1.9 | 2.0 | 2.4 | 2.4 | 2.7 | 3.1 | 2.8 |
| TN | 1.9 | 1.9 | 2.5 | 2.5 | 3.1 | 3.1 | 3.1 |
| VA | 1.6 | 1.5 | 2.6 | 2.9 | 2.9 | 3.2 | 2.9 |
| WV | 1.4 | 1.6 | 2.6 | 2.4 | 2.5 | 2.3 | 2.8 |
| **Great Plains** | **1.9** | **1.9** | **2.6** | **2.7** | **2.8** | **2.8** | **2.9** |
| KS | 2.2 | 2.2 | 2.7 | 2.8 | 2.9 | 2.8 | 2.5 |
| ND | 1.0 | 1.0 | 3.0 | 2.5 | 3.0 | 3.5 | 3.5 |
| NE | 1.9 | 1.8 | 2.4 | 2.6 | 2.8 | 2.9 | 3.1 |
| SD | 1.7 | 1.7 | 2.7 | 2.7 | 2.5 | 2.5 | 2.8 |
| **Midwest** | **1.9** | **1.9** | **2.5** | **2.6** | **2.8** | **2.9** | **3.0** |
| IA | 1.9 | 1.9 | 2.8 | 2.6 | 2.7 | 3.2 | 2.9 |
| IL | 1.8 | 1.7 | 2.5 | 2.7 | 3.0 | 2.9 | 2.8 |
| IN | 1.7 | 1.8 | 2.5 | 2.6 | 2.6 | 2.9 | 3.1 |
| MI | 1.8 | 1.8 | 2.4 | 2.6 | 2.9 | 2.9 | 3.1 |
| MN | 1.8 | 1.9 | 2.4 | 2.6 | 2.6 | 3.0 | 3.1 |
| MO | 2.4 | 2.3 | 2.6 | 2.5 | 2.8 | 2.7 | 2.9 |
| OH | 1.9 | 2.0 | 2.3 | 2.7 | 2.9 | 2.8 | 2.9 |
| WI | 2.0 | 2.0 | 2.8 | 2.9 | 2.5 | 3.0 | 3.1 |
| **Mountain** | **1.9** | **2.0** | **2.4** | **2.6** | **2.8** | **3.2** | **2.8** |
| AZ | 1.5 | 1.5 | 2.3 | 2.5 | 2.8 | 3.2 | 3.0 |
| CO | 2.3 | 2.1 | 2.7 | 2.9 | 2.9 | 3.7 | 2.7 |
| ID | 2.0 | 2.0 | 2.2 | 2.2 | 2.3 | 2.9 | 2.7 |
| MT | 1.0 | 1.0 | 1.0 | 2.0 | 4.0 | 4.0 | 1.0 |
| NV | 1.6 | 1.6 | 2.0 | 2.5 | 3.2 | 2.6 | 3.4 |
| UT | 2.0 | 2.2 | 3.1 | 2.9 | 3.3 | 3.1 | 3.1 |
| WY | 1.0 | | | 2.0 | 2.0 | | |
| **Northeast** | **1.8** | **1.8** | **2.4** | **2.5** | **2.7** | **2.8** | **2.8** |
| CT | 2.1 | 1.5 | 2.1 | 2.5 | 2.6 | 3.0 | 2.9 |
| DE | 1.9 | 1.9 | 2.0 | 2.7 | 2.3 | 2.6 | 2.8 |
| MA | 1.2 | 1.4 | 2.2 | 2.2 | 2.3 | 2.9 | 2.8 |
| MD | 1.9 | 1.9 | 2.6 | 2.6 | 2.5 | 2.6 | 2.9 |
| ME | 1.4 | 1.5 | 2.4 | 2.5 | 2.4 | 2.8 | 2.8 |
| NH | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 4.0 | 1.0 |
| NJ | 1.8 | 1.8 | 2.3 | 2.5 | 2.6 | 3.1 | 2.9 |
| NY | 1.9 | 1.9 | 2.5 | 2.4 | 2.7 | 2.8 | 2.8 |
| PA | 1.9 | 1.9 | 2.5 | 2.5 | 2.8 | 2.8 | 2.8 |
| RI | 2.3 | 2.3 | 3.0 | 3.7 | 3.7 | 3.0 | 3.3 |
| VT | 1.3 | 1.0 | 2.3 | 2.4 | 3.0 | 3.0 | 2.6 |
| **Pacific** | **2.1** | **2.0** | **2.4** | **2.7** | **2.8** | **3.0** | **3.1** |
| AK | 2.0 | 2.0 | 3.0 | 1.0 | 4.0 | 3.0 | 3.0 |
| CA | 2.2 | 2.1 | 2.5 | 2.7 | 3.0 | 3.0 | 3.1 |
| HI | 1.5 | 1.5 | 2.0 | 2.3 | 3.0 | 2.8 | 2.5 |
| OR | 2.1 | 2.1 | 2.5 | 2.8 | 2.4 | 3.2 | 3.0 |
| WA | 1.7 | 1.7 | 2.2 | 2.6 | 2.7 | 3.0 | 3.1 |
| **Southcentral** | **1.8** | **1.8** | **2.3** | **2.4** | **2.7** | **3.1** | **3.0** |
| AR | 2.0 | 2.0 | 2.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| LA | 2.1 | 2.0 | 2.5 | 2.5 | 2.9 | 3.0 | 2.7 |
| NM | 1.8 | 1.8 | 2.2 | 2.5 | 2.7 | 3.3 | 2.2 |
| OK | 2.5 | 2.5 | 2.3 | 2.7 | 3.7 | 3.3 | 4.0 |
| TX | 1.6 | 1.7 | 2.2 | 2.4 | 2.6 | 3.1 | 3.0 |
| **Southeast** | **2.0** | **2.0** | **2.4** | **2.5** | **2.8** | **2.9** | **2.9** |
| AL | 1.8 | 2.0 | 2.6 | 2.1 | 2.4 | 2.8 | 2.8 |
| FL | 2.0 | 2.1 | 2.4 | 2.6 | 2.9 | 2.9 | 2.9 |
| GA | 1.9 | 2.0 | 2.1 | 2.5 | 2.5 | 2.9 | 2.8 |
| MS | 2.0 | 1.8 | 2.6 | 2.6 | 2.4 | 3.1 | 3.2 |
| SC | 1.7 | 1.8 | 2.5 | 2.2 | 2.7 | 2.8 | 2.9 |
| **Grand Total** | **1.9** | **1.9** | **2.4** | **2.5** | **2.8** | **2.9** | **2.9** |

Factors or issues that may potentially affect the overall business environment in the Green Industry included weather uncertainty, land, market demand, labor, water supply, debt and equity capital availability, own managerial expertise, competition/price undercutting, environmental regulations, other government regulations, ability to hire competent management, and ability to hire competent hourly employees. The highest average importance rating score was for market demand (3.31), followed by weather uncertainty (3.16), own managerial expertise (2.82), labor (2.64), competition/price undercutting (2.57), ability to hire competent hourly employees (2.49), water supply (2.39), other (non-environmental) government regulations (2.39), environmental regulations (2.35), land availability (2.24), ability to hire competent management (2.08), equity capital availability (1.99), and debt capital availability (1.98), as shown in Figure 17. Nearly 87 percent of respondents rated market demand as important/very important, followed by weather uncertainty (78%), and own managerial expertise (67%). State and regional average ratings for these factors are presented in Table 20.

**Figure 17.** Factors impacting the general business environment for U.S. Green Industry firms in 2013

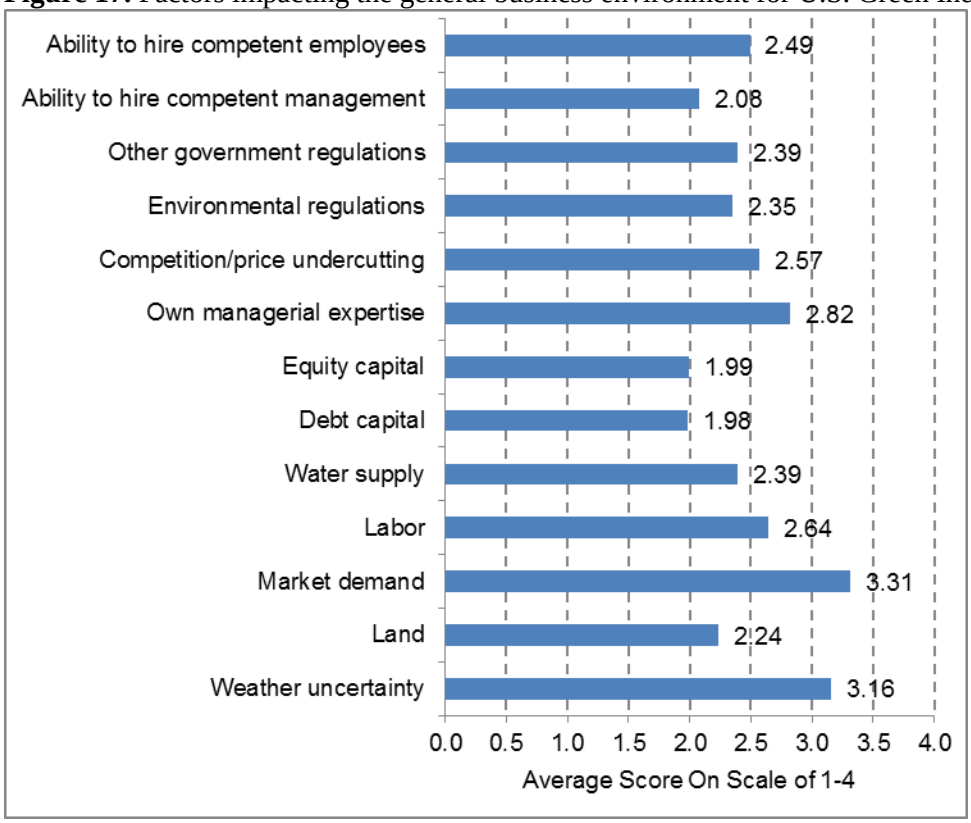


**Table 20.** Factors affecting the general business environment for Green Industry firms in U.S. states and regions in 2013

| Region, State | Weather uncertainty | Land | Market demand | Labor | Water supply | Debt capital | Equity capital |
|---|---|---|---|---|---|---|---|
| | Average on Scale of 1-4: 4="very important", 3="important", 2="moderate importance", 1="not important" | | | | | | |
| **Appalachian** | **3.2** | **2.2** | **3.4** | **2.8** | **2.4** | **2.0** | **2.0** |
| KY | 3.4 | 2.5 | 3.5 | 2.4 | 2.4 | 2.2 | 2.1 |
| NC | 3.1 | 2.2 | 3.4 | 2.8 | 2.3 | 2.1 | 2.0 |
| TN | 3.3 | 2.2 | 3.4 | 2.8 | 2.3 | 2.1 | 2.1 |
| VA | 3.1 | 2.3 | 3.4 | 3.0 | 2.6 | 1.8 | 2.0 |
| WV | 3.6 | 2.2 | 3.3 | 2.6 | 2.5 | 1.6 | 1.6 |
| **Great Plains** | **3.3** | **2.3** | **3.3** | **2.6** | **2.3** | **1.9** | **2.0** |
| KS | 3.4 | 2.0 | 3.5 | 2.5 | 2.4 | 2.1 | 2.3 |
| ND | 3.0 | 3.5 | 3.5 | 3.0 | 3.5 | 1.5 | 1.5 |
| NE | 3.2 | 2.5 | 3.2 | 2.7 | 2.3 | 1.8 | 1.9 |
| SD | 3.5 | 1.9 | 3.0 | 2.8 | 2.3 | 2.1 | 2.1 |
| **Midwest** | **3.3** | **2.2** | **3.3** | **2.6** | **2.2** | **1.9** | **1.9** |
| IA | 3.3 | 2.6 | 3.1 | 2.8 | 2.1 | 1.7 | 1.9 |
| IL | 3.3 | 2.3 | 3.4 | 2.7 | 2.3 | 1.8 | 1.7 |
| IN | 3.1 | 2.1 | 3.1 | 2.6 | 2.1 | 1.7 | 1.8 |
| MI | 3.3 | 2.2 | 3.2 | 2.6 | 2.1 | 2.1 | 1.9 |
| MN | 3.6 | 1.9 | 3.1 | 2.6 | 2.1 | 1.8 | 1.9 |
| MO | 3.4 | 2.1 | 3.3 | 2.6 | 2.5 | 2.0 | 2.0 |
| OH | 3.3 | 2.1 | 3.4 | 2.7 | 2.2 | 1.9 | 1.9 |
| WI | 3.5 | 2.2 | 3.3 | 2.8 | 2.4 | 2.4 | 2.3 |
| **Mountain** | **3.0** | **2.2** | **3.3** | **2.5** | **2.6** | **1.9** | **2.0** |
| AZ | 2.2 | 1.7 | 3.2 | 2.8 | 2.5 | 1.8 | 1.8 |
| CO | 3.1 | 2.4 | 3.4 | 2.7 | 2.7 | 2.1 | 2.3 |
| ID | 2.7 | 2.2 | 3.2 | 2.2 | 2.6 | 1.9 | 1.9 |
| MT | 3.7 | 1.7 | 3.3 | 2.0 | 2.0 | 1.0 | 1.0 |
| NV | 3.3 | 1.8 | 3.2 | 2.3 | 2.2 | 1.5 | 1.7 |
| UT | 3.3 | 2.5 | 3.4 | 2.8 | 2.8 | 1.8 | 2.2 |
| WY | 4.0 | | 4.0 | 4.0 | | | |
| **Northeast** | **3.3** | **2.3** | **3.3** | **2.5** | **2.2** | **1.9** | **1.9** |
| CT | 3.3 | 2.7 | 3.3 | 2.4 | 2.3 | 1.9 | 1.6 |
| DE | 3.4 | 2.3 | 3.2 | 2.2 | 2.2 | 2.3 | 2.0 |
| MA | 2.9 | 2.5 | 3.1 | 2.4 | 1.8 | 1.8 | 2.0 |
| MD | 3.0 | 2.0 | 3.4 | 2.3 | 2.0 | 2.2 | 2.0 |
| ME | 3.3 | 2.1 | 3.3 | 3.0 | 2.0 | 1.9 | 1.9 |
| NH | 4.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 4.0 |
| NJ | 3.3 | 2.6 | 3.5 | 2.9 | 2.2 | 1.8 | 1.9 |
| NY | 3.3 | 2.3 | 3.3 | 2.4 | 2.4 | 1.9 | 1.9 |
| PA | 3.2 | 2.1 | 3.3 | 2.4 | 2.1 | 1.9 | 1.9 |
| RI | 3.3 | 2.4 | 3.9 | 3.1 | 3.1 | 2.3 | 2.3 |
| VT | 3.3 | 2.6 | 3.3 | 2.6 | 2.4 | 1.7 | 1.6 |
| **Pacific** | **3.0** | **2.3** | **3.3** | **2.8** | **2.9** | **2.1** | **2.0** |
| AK | 3.0 | 2.0 | 4.0 | 2.0 | 1.0 | 3.0 | 3.0 |
| CA | 3.0 | 2.4 | 3.4 | 2.9 | 3.3 | 2.1 | 2.1 |
| HI | 3.4 | 1.6 | 3.8 | 2.8 | 2.4 | 2.0 | 2.0 |
| OR | 2.9 | 2.1 | 3.1 | 2.8 | 2.3 | 2.1 | 2.1 |
| WA | 2.8 | 2.2 | 3.0 | 2.6 | 2.0 | 1.8 | 1.8 |
| **Southcentral** | **3.0** | **2.2** | **3.1** | **2.5** | **2.7** | **1.8** | **1.9** |
| AR | 4.0 | 2.5 | 2.8 | 3.3 | 3.3 | 1.5 | 1.5 |
| LA | 2.9 | 2.0 | 3.2 | 2.5 | 2.3 | 2.1 | 2.1 |
| NM | 2.6 | 2.0 | 2.8 | 2.7 | 2.8 | 2.1 | 2.1 |
| OK | 3.2 | 2.8 | 3.6 | 3.0 | 3.0 | 2.4 | 2.6 |
| TX | 3.1 | 2.3 | 3.1 | 2.4 | 2.7 | 1.7 | 1.7 |
| **Southeast** | **3.0** | **2.3** | **3.4** | **2.7** | **2.5** | **2.1** | **2.1** |
| AL | 3.3 | 1.9 | 3.1 | 2.4 | 2.3 | 1.9 | 1.9 |
| FL | 3.0 | 2.3 | 3.4 | 2.7 | 2.5 | 2.1 | 2.2 |
| GA | 2.9 | 2.2 | 3.2 | 2.7 | 2.4 | 2.0 | 2.0 |
| MS | 3.2 | 1.6 | 3.7 | 2.8 | 2.1 | 1.8 | 1.6 |
| SC | 3.2 | 2.4 | 3.3 | 2.3 | 2.4 | 1.9 | 1.9 |
| **Grand Total** | **3.2** | **2.2** | **3.3** | **2.6** | **2.4** | **2.0** | **2.0** |

**Table 20 (continued).** Factors affecting the general business environment for Green Industry firms in U.S. states and regions in 2013

| Region, State | Own managerial expertise | Competition, price undercutting | Environmental regulations | Other government regulations | Ability to hire competent management | Ability to hire competent employees |
|---|---|---|---|---|---|---|
| | Average on Scale of 1-4: 4="very important", 3="important", 2="moderate importance", 1="not important" | | | | | |
| **Appalachian** | **2.8** | **2.6** | **2.4** | **2.4** | **2.2** | **2.5** |
| KY | 3.3 | 2.9 | 2.3 | 2.3 | 2.0 | 2.4 |
| NC | 2.8 | 2.5 | 2.3 | 2.4 | 2.3 | 2.6 |
| TN | 2.7 | 2.6 | 2.4 | 2.5 | 2.2 | 2.6 |
| VA | 2.8 | 2.6 | 2.7 | 2.6 | 2.4 | 2.6 |
| WV | 2.6 | 2.3 | 2.1 | 1.9 | 1.6 | 2.0 |
| **Great Plains** | **3.0** | **2.2** | **2.1** | **2.2** | **2.0** | **2.5** |
| KS | 3.2 | 2.2 | 2.2 | 2.4 | 2.0 | 2.5 |
| ND | 3.5 | 1.5 | 2.5 | 2.5 | 1.0 | 1.5 |
| NE | 2.9 | 2.3 | 2.1 | 2.1 | 1.8 | 2.5 |
| SD | 2.9 | 2.1 | 1.8 | 1.9 | 2.8 | 3.1 |
| **Midwest** | **2.8** | **2.5** | **2.2** | **2.3** | **2.1** | **2.6** |
| IA | 3.2 | 2.1 | 1.8 | 1.9 | 1.9 | 2.6 |
| IL | 2.6 | 2.5 | 2.3 | 2.2 | 2.3 | 2.7 |
| IN | 2.8 | 2.6 | 2.3 | 2.2 | 2.3 | 2.8 |
| MI | 2.7 | 2.5 | 2.3 | 2.3 | 1.9 | 2.4 |
| MN | 2.8 | 2.5 | 2.2 | 2.3 | 2.2 | 2.7 |
| MO | 3.2 | 2.2 | 2.0 | 2.2 | 2.2 | 2.7 |
| OH | 2.7 | 2.6 | 2.1 | 2.3 | 1.9 | 2.4 |
| WI | 3.2 | 2.7 | 2.5 | 2.5 | 2.4 | 2.8 |
| **Mountain** | **2.9** | **2.3** | **2.2** | **2.4** | **2.3** | **2.4** |
| AZ | 3.0 | 2.8 | 2.3 | 2.7 | 1.8 | 2.8 |
| CO | 3.0 | 2.5 | 2.4 | 2.6 | 2.0 | 2.7 |
| ID | 2.9 | 2.0 | 2.0 | 2.0 | 1.7 | 2.0 |
| MT | 1.5 | 2.0 | 3.5 | 3.5 | 2.0 | 3.0 |
| NV | 2.3 | 1.5 | 2.0 | 2.2 | 6.8 | 2.2 |
| UT | 3.1 | 2.5 | 2.2 | 2.6 | 2.1 | 2.9 |
| WY | | 4.0 | | | | |
| **Northeast** | **2.8** | **2.5** | **2.3** | **2.3** | **1.9** | **2.3** |
| CT | 3.1 | 2.7 | 2.6 | 2.2 | 1.9 | 2.2 |
| DE | 2.8 | 2.5 | 2.1 | 2.3 | 1.9 | 2.2 |
| MA | 2.7 | 2.4 | 2.0 | 2.1 | 1.9 | 2.2 |
| MD | 2.3 | 2.4 | 2.5 | 2.4 | 2.0 | 2.5 |
| ME | 2.5 | 1.8 | 2.0 | 2.2 | 1.5 | 2.5 |
| NH | 3.0 | 4.0 | 2.0 | 2.0 | 4.0 | 4.0 |
| NJ | 2.8 | 2.7 | 2.5 | 2.5 | 2.2 | 2.9 |
| NY | 2.7 | 2.5 | 2.3 | 2.4 | 1.9 | 2.3 |
| PA | 2.9 | 2.5 | 2.3 | 2.3 | 1.7 | 2.1 |
| RI | 3.4 | 3.0 | 2.7 | 2.4 | 2.6 | 2.9 |
| VT | 2.9 | 2.4 | 1.7 | 1.8 | 1.4 | 2.4 |
| **Pacific** | **2.9** | **2.8** | **2.6** | **2.6** | **2.3** | **2.6** |
| AK | 2.0 | 1.0 | 1.0 | 2.0 | 1.0 | 1.0 |
| CA | 2.9 | 2.9 | 2.8 | 2.7 | 2.5 | 2.7 |
| HI | 2.6 | 2.8 | 2.8 | 2.6 | 2.6 | 3.0 |
| OR | 2.9 | 2.7 | 2.5 | 2.5 | 2.2 | 2.7 |
| WA | 2.8 | 2.4 | 2.3 | 2.2 | 1.9 | 2.3 |
| **Southcentral** | **2.9** | **2.4** | **2.2** | **2.3** | **2.1** | **2.5** |
| AR | 2.8 | 2.0 | 1.3 | 1.5 | 1.5 | 2.8 |
| LA | 2.7 | 2.5 | 2.2 | 2.2 | 2.3 | 2.5 |
| NM | 2.6 | 2.4 | 2.0 | 2.4 | 2.1 | 2.4 |
| OK | 3.2 | 2.8 | 2.2 | 2.8 | 1.6 | 2.5 |
| TX | 2.9 | 2.4 | 2.3 | 2.3 | 2.0 | 2.4 |
| **Southeast** | **2.8** | **2.7** | **2.5** | **2.6** | **2.1** | **2.5** |
| AL | 2.4 | 2.7 | 2.3 | 2.6 | 1.9 | 2.5 |
| FL | 2.8 | 2.8 | 2.6 | 2.6 | 2.2 | 2.5 |
| GA | 2.7 | 2.6 | 2.3 | 2.3 | 2.1 | 2.6 |
| MS | 2.6 | 3.0 | 2.3 | 2.4 | 2.3 | 2.9 |
| SC | 2.8 | 2.5 | 2.3 | 2.4 | 1.7 | 2.0 |
| **Grand Total** | **2.8** | **2.6** | **2.4** | **2.4** | **2.1** | **2.5** |

# Literature and Information Sources Cited


Brooker, John R. and Steven C. Turner. Trade Flows and Marketing Practices within the United States Nursery Industry. Southern Cooperative Series Bulletin 358, University of Tennessee Agricultural Experiment Station, October 1990.

Brooker, John R., Steven C. Turner, and Roger A. Hinson. Trade Flows and Marketing Practices within the United States Nursery Industry: 1993. Southern Cooperative Series Bulletin 384, University of Tennessee Agricultural Experiment Station, 1995.

Brooker, John R., Roger A. Hinson, and Steven C. Turner. Trade Flows and Marketing Practices within the United States Nursery Industry: 1998. Southern Cooperative Series Bulletin 397, University of Tennessee Agricultural Experiment Station, 2000.

Brooker, John R., David Eastwood, Charles R. Hall, Kirk Morris, Alan W. Hodges and John J. Haydu. Trade Flows and Marketing Practices within the United States Nursery Industry: 2003. Southern Cooperative Series Bulletin 404, University of Tennessee Agricultural Experiment Station, 2005, http://economics.ag.utk.edu/pub/crops/SCB404.pdf.

Dillman, Don A, Jolene D. Smyth and Leah M. Christian. *Internet, Mail and Mixed-Mode Surveys: the Tailored Design Method*, 3rd edition, John Wiley & Sons, 464 pages, 2008.

Hodges, Alan W., Marco A. Palma and Charles R. Hall. Trade Flows and Marketing Practices within the United States Nursery Industry, 2008. Southern Cooperative Series Bulletin 411, 68 pages, 2009, http://www.greenindustresearch.org.

U.S. Department of Agriculture, National Agricultural Statistical Service (USDA-NASS). 2012 Census of Agriculture. United States Summary and State Data, Vol. 1, Geographic Area Series Part 51, 2014.

# Appendix A-National Green Industry Survey Questionnaire

## *2014 National Green Industry Survey*

Dear Nursery Owner or Manager:

This survey is being conducted by the *Green Industry Research Consortium*, a group of University-based horticulturists and agricultural economists, with funding support by the Horticultural Research Institute (HRI). This represents the sixth time that this survey has been conducted by our group since 1989. The purpose of the survey is to document trends in production, marketing and retailing practices in the U.S. Green Industry. The survey is being sent to randomly selected wholesale and retail firms throughout the U.S. Some questions in the survey pertain specifically to firms with wholesale sales and other questions to firms with retail sales. Information collected in this survey will be invaluable to researchers, educators, and allied professionals, as well as owners and managers in the nursery industry. Much of this information is not available from any other source. To see examples of the results provided by this project, please visit our website at https://sites.google.com/site/greenindustryresearch/.

It is important that you respond to this survey so that your type of business is represented in the study. Of course, your participation is voluntary, and you do not have to answer any questions that you do not wish to. All information provided is ***anonymous and strictly confidential***, and results will only be disclosed in summary form. Unfortunately, we cannot provide any compensation for your participation, however, your time in this matter is gratefully appreciated.

When you have completed the questionnaire, please return it in the postage-paid envelope provided.

If you have questions or concerns about the survey, please contact one of the principal investigators:


| Dr. Alan W. Hodges | Dr. Charles R. Hall | Dr. Marco Palma |
|---|---|---|
| University of Florida | Texas A & M University | Texas A & M University |
| 352-294-7674 | 979-458-3277 | 979-845-5284 |
| awhodges@ufl.edu | chall@ag.tamu.edu | mapalma@tamu.edu |


Thank you very much for you cooperation!

**General Company Information**

1. In what **state** is your business primarily located?
   (may use two letter abbreviation)

2. What is the **ZIP code** for this location?

3. Does your business **operate a related business in another state**?
   ___Yes ___No If yes, please list the state(s):

4. What **year** was your firm established?

**Employment**

5. How many **employees** did your firm have last year (2013)?
   _____ Permanent employees
   _____ Temporary or seasonal employees (average number during peak season)
   _____ Temporary workers through the H2A Program (included in above)

6. How has the **number of employees changed** over the last five years?
   (check which applies)
   Permanent employees: ____Increased ____Stayed the same ____Decreased
   Temporary employees: ____Increased ____Stayed the same ____Decreased

   If employment has increased or decreased, indicate by what percent:
   Permanent _____% Temporary _____%

**Nursery Product Types**

7. What percentage of your sales last year (2013) were for the following **plant types**? (answers should sum to 100%)
   _____% Deciduous shade and flowering trees
   _____% Deciduous shrubs
   _____% Broad-leaved evergreen shrubs (excluding azaleas)
   _____% Narrow-leaved evergreen shrubs
   _____% Evergreen trees
   _____% Azaleas
   _____% Vines and grounds covers
   _____% Roses
   _____% Herbaceous perennials
   _____% Bedding plants - flowering annuals
   _____% Bedding plants - vegetables, fruits, and herbs
   _____% Flowering potted plants
   _____% Christmas trees (live or cut)
   _____% Tree fruits
   _____% Foliage
   _____% Sod
   _____% Propagated material (liners, cuttings, plugs, etc.)
   _____% Other (list)

8. What percentage of your total plant sales last year were **native plants,** i.e. plants present in your state before European settlement? _____%

9. What percentage of your plant sales last year were in the following **product forms**? (answers should sum to 100%)
   _____% Containerized
   _____% Balled and burlapped
   _____% Field grow bag
   _____% Bare root
   _____% Balled and potted / process balled
   _____% In-ground containers (including pot-in-pot)
   _____% Other types: e.g. cut trees, budwood, scions, seeds, tissue cultured plantlets, unrooted cuttings (circle other types listed above or specify as follows) _____

**Production and Management Practices**

10. Which of the following **Integrated Pest Management (IPM) practices** did your company follow last year? (check any that apply)
    _____ Remove infested plants or plant parts
    _____ Alternate pesticides to avoid chemical resistance
    _____ Elevate or space plants for air circulation
    _____ Use cultivation, hand weeding
    _____ Disinfect benches/ground cover
    _____ Use sanitized water foot baths
    _____ Soil solarization/sterilization
    _____ Monitor pest populations with tarp or sticky boards
    _____ Adjust pesticide application to protect beneficials
    _____ Use mulches to suppress weeds
    _____ Beneficial insect identification
    _____ Inspect incoming stock
    _____ Manage irrigation to reduce pests
    _____ Spot treatment with pesticides
    _____ Ventilate greenhouses
    _____ Use of beneficial insects
    _____ Keep pest activity records
    _____ Adjust fertilization rates
    _____ Use screening/barriers to exclude pests
    _____ Use biopesticides/lower toxicity
    _____ Treat retention pond water
    _____ Use pest resistant varieties

11. What percentage of your irrigation water last year was obtained from the following source(s)? (answers should sum to 100%)
    _____% Natural surface _____% Recaptured _____% Reclaimed _____% City (potable) _____% Well

12. What percentage of your irrigation water was applied by the following methods? (answers should sum to 100%)
    _____% Overhead _____% Drip irrigation
    _____% Subirrigation (ebb/flood) _____% Other types (list)

13. How has your **irrigation water use** on a per acre basis changed over the past five years? (check answer that applies)
    _____Increased _____Decreased _____Remained the same
    If irrigation water use has increased or decreased, indicate by what percent? ____%

14. Are you utilizing any "smart" irrigation systems, i.e. systems that monitor crop water needs and apply only the amount of water needed? ____Yes ____No

**Marketing Practices**

15. What percentage of your sales last year were **wholesale vs. retail**?
    (answers should sum to 100%) _____% Wholesale _____% Retail

16. What percentage of your wholesale sales last year were to the following type(s) of **market outlets**? (answers should sum to 100%)
    _____% Mass merchandisers (general merchandise stores, etc.)
    _____% Home Centers (home improvement, building supply, hardware, etc.)
    _____% Single location garden centers
    _____% Multiple location garden centers (chain stores)
    _____% Landscape firms (in-house or external)
    _____% Re-wholesalers (brokers, other growers, etc.)

17. What percentage of your sales last year were made using the following **sales methods**? (answers should sum to 100%)
    _____% Trade shows _____% Telephone _____% In-person
    _____% Mail order _____% Internet

18. At how many **trade shows** was your firm represented last year, with or without an exhibit?
    _____With an exhibit _____Without an exhibit

19. What percentage of your sales last year were to **repeat customers**? _____%

20. What methods do you use for getting customer demographic information? (check any that apply)
    _____ Questionnaires _____ U.S. Census
    _____ Marketing firm _____ Web visits
    _____ Social coupons _____ Social media
    _____ Customer loyalty program
    _____ Other sources, list examples: _____

21. Do you publish discount (price) information for large-volume purchases?
    ____Yes ____No

22. What percentage of your sales last year were **negotiated,** i.e. there was discussion over price, quality or other terms of sale? _____%

23. What percentage of total sales did your firm spend on **advertising** last year?
    _____%

24. What percentage of your **advertising budget** was spent on the following media forms last year? (answers should sum to 100%)
    _____% Internet websites _____% Yellow pages
    _____% Radio / TV _____% Billboards
    _____% Gardening publications _____% Catalogs (print or CD)
    _____% Trade journals _____% Newsletters
    _____% Trade shows _____% Social media
    _____% Other (specify)

25. Did you **resell or broker** plants for other growers last year?
    _____Yes _____No

    If yes, what percent of your total sales did this account for? _____%

26. What percentage of your total sales last year were **pre-booked on contract**, i.e. sold or committed before being produced? _____%

27. If you grow on contract, which of the following types of buyers contracted for production with your firm last year? (check any that apply)
    ____ Other producers ____ Retail garden centers
    ____ Mass merchandisers ____ Cooperatives
    ____ Other (please specify)

**Regional Trade in Nursery Products**

28. What were the top five **states or countries**, including your own state, that you **purchased from** last year to obtain seedlings, liners, whips, grafted material, tissue culture plantlets, cuttings, or plugs, and the percentage of total purchases represented by each?

| State or Country | Percent of Purchases |
|---|---|
| 1) _____ | _____% |
| 2) _____ | _____% |
| 3) _____ | _____% |
| 4) _____ | _____% |
| 5) _____ | _____% |

29. Did your firm **export** nursery products out of the U.S. last year?
_____Yes _____No

If you exported, what percentage of total sales were for exports? _____%

List the most important countries you exported to: _____

_____

30. What were the top five **states or countries**, including your own state, that you **sold plant products to** last year and what percentage of total sales each represented, including the home state of your principal location?

| State or Country | Percent of Total Sales |
|---|---|
| 1) Home state _____ | _____% |
| 2) _____ | _____% |
| 3) _____ | _____% |
| 4) _____ | _____% |
| 5) _____ | _____% |

**Factors Affecting Management and Planning**

31. Rate the importance of each of the following **factors for determining prices for your products**, using a scale of 1 to 4, with 1= not important; 2= minor importance; 3= important; and 4= very important (check in appropriate column).

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Cost of production | _____ | _____ | _____ | _____ |
| Inflation | _____ | _____ | _____ | _____ |
| Other growers' prices | _____ | _____ | _____ | _____ |
| Grade of plants | _____ | _____ | _____ | _____ |
| Market demand | _____ | _____ | _____ | _____ |
| Product uniqueness | _____ | _____ | _____ | _____ |
| Inventory levels | _____ | _____ | _____ | _____ |
| Last year's price | _____ | _____ | _____ | _____ |
| Other | _____ | _____ | _____ | _____ |

Please specify other factor _____

32. Rate each of the following **factors affecting the geographic range of your trading area**, using a scale of 1 to 4, with 1= not important; 2= minor importance; 3= important; and 4= very important (check in appropriate column).

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Debt capital | ____ | ____ | ____ | ____ |
| Equity capital | ____ | ____ | ____ | ____ |
| Marketing | ____ | ____ | ____ | ____ |
| Personnel | ____ | ____ | ____ | ____ |
| Production | ____ | ____ | ____ | ____ |
| Transportation | ____ | ____ | ____ | ____ |
| Plant offerings | ____ | ____ | ____ | ____ |

33. Rate each of the following **factors impacting your business**, using a scale of 1 to 4 scale, with 1= not important; 2= minor importance; 3= important; and 4= very important (check in appropriate column).

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Weather uncertainty | ____ | ____ | ____ | ____ |
| Land | ____ | ____ | ____ | ____ |
| Market demand | ____ | ____ | ____ | ____ |
| Labor | ____ | ____ | ____ | ____ |
| Water supply | ____ | ____ | ____ | ____ |
| Debt capital | ____ | ____ | ____ | ____ |
| Equity capital | ____ | ____ | ____ | ____ |
| Own managerial expertise | ____ | ____ | ____ | ____ |
| Competition / Price undercutting | ____ | ____ | ____ | ____ |
| Environmental regulations | ____ | ____ | ____ | ____ |
| Other government regulations | ____ | ____ | ____ | ____ |
| Ability to hire competent management | ____ | ____ | ____ | ____ |
| Ability to hire competent hourly employees | ____ | ____ | ____ | ____ |

**Annual Sales**

34. What was the **gross value of product sales** from your nursery last year (2013) or the most recent completed fiscal year?

Enter specific value here: $_____

Alternatively, check the appropriate range below:

| | |
|---|---|
| ____ Less than $249,999 | ____ $250,000 to $499,999 |
| ____ $500,000 to $999,999 | ____ $1,000,000 to $1,999,999 |
| ____ $2,000,000 to $2,999,999 | ____ $3,000,000 to $3,999,999 |
| ____ $4,000,000 to $4,999,999 | ____ $5,000,000 to $9,999,999 |
| ____ $10,000,000 to $14,999,999 | ____ $15,000,000 to $19,999,999 |
| ____ $20,000,000 to $29,999,999 | ____ $30,000,000 to $39,999,999 |
| ____ $40,000,000 to $49,999,999 | ____ $50,000,000 or more |

If your sales were $50 million or more, please indicate the value rounded to the nearest million dollars: _____

Please add any other comments you wish to share about your business in the spaces below

_____

_____

_____

_____

_____

_____

_____

Please return the completed questionnaire in the postage-paid envelope provided.

Thank you very much for you cooperation!