

Forest Nursery Seedling Production in the United States—Fiscal Year 2017

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Abstract

Forest nursery production for the 2017 planting season was nearly 1.3 billion forest tree seedlings with nearly 2.5 million ac (1 million ha) of trees planted. Similar to previous years, most production and planting occurred in the Southern States, and approximately 75 percent of outplanted trees are bareroot stock.

Background

This annual report summarizes forest nursery seedling production in the United States. The number of seedlings reported is used to estimate the number of acres of forest planting per year. Prepared by the USDA Forest Service, Forest Inventory and Analysis (FIA) and State and Private Forestry, this report includes State-by-State breakdowns, regional totals, and an analysis of data trends. Universities in the Southern, Northeastern, and Western regions of the United States made an effort to collect data from all the major producers of forest and conservation seedlings in the 50 States. Forest and conservation nursery managers provided the information presented in this report. As far as we know, it is the most complete compilation of such data in the country. Because all data are provided voluntarily by outside sources and some data are estimated, caution must be used in drawing inferences.

Methodology

State and Private Forestry, in collaboration with Auburn University, the University of Idaho, and Purdue University, produced the data for this report. These universities collected forest tree seedling production data directly from the forest and conservation nurseries that grow forest tree seedlings in their region of the United States (Auburn University collected from 13 States in the Southeast, the University of Idaho collected from 17 States in the West, and Purdue University collected from 21 States in the Northeast and Midwest). The approximation of planted acres for each State is derived from FIA estimates of tree planting area based on ground-plot data that States collected during 5-, 7-, or 10-year periods and compiled as an average annual estimate for the associated period. FIA estimates of acres of trees planted by State may not correlate with nursery production surveys because nurseries do not report shipments across State lines. Total acres by region, however, provide a reasonable comparison between the two methods. Data collected are reported by hardwood and conifer seedlings produced and acreage planted of each (table 1) and by bareroot and container seedlings produced (table 2). A complete list of the assumptions used in compiling this report appears in the *Forest Nursery Seedling Production in the United States—Fiscal Year 2013* (Harper et al. 2014).

Table 1. Hardwood and conifer tree seedling production and acres planted for each State and each region during the 2016-2017 planting year.

State	Hardwood seedlings produced	Hardwood acres planted ¹	Conifer seedlings produced	Canadian conifer imports	Conifer acres planted ¹	Total seedlings produced	Total acres planted ¹	FIA data acres planted ¹⁰
Southeast								
Florida ²	2,570,129	4,673	56,486,000	—	102,702	59,056,129	107,375	152,359
Georgia ²	4,982,066	9,058	347,678,022	—	632,142	352,660,088	641,200	239,619
North Carolina ²	320,000	582	73,532,000	—	133,695	73,852,000	134,276	99,215
South Carolina ²	639,720	1,163	129,647,894	—	235,723	130,287,614	236,887	76,808
Virginia ²	756,000	1,375	34,612,900	—	62,933	35,368,900	64,307	74,872
Regional Totals	9,267,915	16,851	641,956,816	0	1,167,194	651,224,731	1,184,045	642,873
South Central								
Alabama ²	589,500	1,072	105,525,738	—	191,865	106,115,238	192,937	223,021
Arkansas ²	11,179,646	20,327	87,096,905	—	158,358	98,276,551	178,685	117,744
Kentucky ³	883,760	2,032	95,300	—	219,08	979,060	2,251	1,155
Louisiana ²	—	—	33,706,700	—	61,285	33,706,700	61,285	160,801
Mississippi ²	865,000	1,573	85,590,000	—	155,618	86,455,000	157,191	178,998
Oklahoma ²	559,475	1,017	4,284,475	—	7,790	4,843,950	8,807	21,521
Tennessee ²	1,635,000	2,973	4,252,000	—	7,731	5,887,000	10,704	28,005
Texas ²	33,800	61	78,385,629	—	142,519	78,419,429	142,581	262,584
Regional Totals	15,746,181	29,054	398,936,747	0	725,385	414,682,928	754,440	993,829
Northeast								
Connecticut ³	1,000	2	500	—	1	1,500	3	—
Delaware	—	—	—	—	—	—	—	647
Maine ¹¹	—	—	—	—	—	—	—	8,168
Maryland ²	1,248,975	2,271	1,191,740	—	2,167	2,440,715	4,438	1,445
Massachusetts ³	—	—	19,200	—	44	19,200	44	—
New Hampshire ³	18,500	43	83,730	—	192	102,230	235	—
New Jersey ³	464,380	1,068	151,210	—	348	615,590	1,415	—
New York ⁵	161,500	269	656,500	—	—	818,000	269	—
Pennsylvania ³	2,290,572	5,266	3,816,476	—	8,774	6,107,048	14,039	2,680
Rhode Island	—	—	—	—	—	—	—	—
Vermont ³	2,500	6	400	—	—	2,900	6	—
West Virginia ³	418,825	963	86,475	—	199	505,300	1,162	870
Regional Totals	4,606,252	9,887	6,006,231	0	11,724	10,612,483	21,611	13,810
North Central								
Illinois ³	666,910	1,533	125,640	—	289	792,550	1,822	2,498
Indiana ⁴	2,094,016	3,222	1,203,730	—	1,852	3,297,746	5,073	1,753
Iowa ⁵	725,080	1,208	212,110	—	354	937,190	1,562	621
Michigan ^{2,9}	2,350,568	4,274	28,537,370	—	51,886	30,887,938	56,160	9,467
Minnesota ^{2,9}	728,720	1,325	5,167,250	9,875,000	27,350	15,770,970	28,674	17,470
Missouri ³	1,119,250	2,573	566,395	—	1,302	1,685,645	3,875	—
Ohio ³	10,200	23	40	—	<1	10,240	23	3,018
Wisconsin ^{6,9}	941,728	1,177	2,158,776	500,000	3,323	3,600,504	4,501	10,459
Regional Totals	8,636,472	15,335	37,971,311	10,375,000	86,355	56,982,783	101,691	45,286

State	Hardwood seedlings produced	Hardwood acres planted ¹	Conifer seedlings produced	Canadian conifer imports	Conifer acres planted ¹	Total seedlings produced	Total acres planted ¹	FIA data acres planted ¹⁰
Great Plains								
Kansas ²	21,000	38	61,000	—	111	82,000	149	—
Nebraska ²	600,000	1,091	1,450,000	—	2,636	2,050,000	3,727	1,182
North Dakota ²	42,100	77	778,800	—	1,416	820,900	1,493	—
South Dakota ²	770,539	1,401	418,011	—	760	1,188,550	2,161	—
Regional Totals	1,433,639	2,607	2,707,811	0	4,923	4,141,450	7,530	1,182
Intermountain								
Arizona ²	1,200	2	70,560	—	128	71,760	130	597
Colorado ²	157,025	286	121,500	—	221	278,525	506	—
Idaho ²	210,806	383	11,978,018	960,000	23,524	13,148,824	23,907	7,108
Montana ²	382,859	696	813,043	—	1,478	1,195,902	2,174	8,082
Nevada ²	5,294	10	1,000	—	2	6,294	11	—
New Mexico ²	7,200	13	215,050	—	391	222,250	404	872
Utah ²	1,000,000	1,818	200,000	—	364	1,200,000	2,182	—
Wyoming	—	—	—	—	—	0	0	997
Regional Totals	1,764,384	3,208	13,399,171	960,000	26,108	16,123,555	29,316	17,656
Alaska								
Alaska ²	16,000	29	22,000	185,000	376	223,000	405	—
Pacific Northwest								
Oregon ^{7,9}	4,442,500	12,693	57,166,400	140,000	163,733	61,748,900	176,425	133,374
Washington ^{7,9}	8,607,218	24,592	40,380,620	800,000	117,659	49,787,838	142,251	97,872
Regional Totals	13,049,718	37,285	97,547,020	940,000	281,391	111,536,738	318,676	231,246
Pacific Southwest								
California ⁸	104,128	231	19,022,893	—	42,273	19,127,021	42,504	33,657
Hawaii ⁸	168,000	373	2,000	—	4	170,000	378	—
Regional Totals	272,128	605	19,024,893	0	42,278	19,297,021	42,882	33,657
Totals	54,792,689	114,860	1,217,572,000	12,460,000	2,345,736	1,284,824,689	2,460,596	1,979,539

¹ Acres planted were estimated assuming:

² 550 stems/acre

³ 435 stems/acre

⁴ 650 stems/acre

⁵ 600 stems/acre

⁶ 800 stems/acre

⁷ 350 stems/acre

⁸ 450 stems/acre

⁹ Totals include an estimate of container conifers produced in Canada for distribution to neighboring States; bareroot imports for Maine and containers for other States.

¹⁰ FIA = Forest Inventory and Analysis; average annual acreage planted estimated for all States (2017) on 5-year cycles, except for Alabama, Louisiana, Mississippi, and North Carolina, which are on 7-year cycles, and for Alaska, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, and Washington, which are on 10-year cycles. Data generated by Andy Hartsell, USDA Forest Service.

¹¹ We did not receive any replies to our survey, but last year 18.5 million seedlings were reportedly planted in the State of Maine

Table 2. Bareroot and container tree seedling production for each State and each region during the 2016-2017 planting year.

State	Bareroot	Container ¹	Total Seedlings Produced	State	Bareroot	Container ¹	Total Seedlings Produced
Southeast				Iowa	926,190	11,000	937,190
Florida	54,515,263	4,540,866	59,056,129	Michigan	28,442,114	2,445,824	30,887,938
Georgia	211,114,488	141,545,600	352,660,088	Minnesota	3,051,570	12,719,400	15,770,970
North Carolina	59,712,000	14,140,000	73,852,000	Missouri	1,679,645	6,000	1,685,645
South Carolina	129,417,840	869,774	130,287,614	Ohio	—	10,240	10,240
Virginia	35,360,900	8,000	35,368,900	Wisconsin	3,089,704	510,800	3,600,504
Regional Totals	490,120,491	161,104,240	651,224,731	Regional Totals	41,064,869	15,917,914	56,982,783
South Central				Great Plains			
Alabama	98,529,066	7,586,172	106,115,238	Kansas	—	82,000	82,000
Arkansas	98,215,051	61,500	98,276,551	North Dakota	1,200,000	850,000	2,050,000
Kentucky	978,060	1,000	979,060	Nebraska	740,500	80,400	820,900
Louisiana	—	33,706,700	33,706,700	South Dakota	1,159,202	29,348	1,188,550
Mississippi	76,955,000	9,500,000	86,455,000	Regional Totals	3,099,702	1,041,748	4,141,450
Oklahoma	4,497,425	346,525	4,843,950	Intermountain			
Tennessee	5,887,000	—	5,887,000	Arizona	—	71,760	71,760
Texas	78,419,429	—	78,419,429	Colorado	153,775	124,750	278,525
Regional Totals	363,481,031	51,201,897	414,682,928	Idaho	1,044,055	12,104,769	13,148,824
Northeast				Montana	454,920	740,982	1,195,902
Connecticut	—	1,500	1,500	New Mexico	—	222,250	222,250
Delaware	—	—	—	Nevada	—	6,294	6,294
Maine ^{5,9}	—	—	—	Utah	—	1,200,000	1,200,000
Maryland	2,199,715	241,000	2,440,715	Wyoming	—	—	—
Massachusetts	6,000	13,200	19,200	Regional Totals	1,652,750	14,470,805	16,123,555
New Hampshire	102,230	—	102,230	Alaska			
New Jersey	256,600	358,990	615,590	Alaska	—	223,000	223,000
New York	818,000	—	818,000	Pacific Northwest			
Pennsylvania	6,090,686	16,362	6,107,048	Oregon	37,560,000	24,188,900	61,748,900
Rhode Island	—	—	—	Washington	38,431,300	11,356,538	49,787,838
Vermont	1,500	1,400	2,900	Regional Totals	75,991,300	35,545,438	111,536,738
West Virginia	505,300	—	505,300	Pacific Southwest			
Regional Totals	9,980,031	632,452	10,612,483	California	750	19,126,271	19,127,021
North Central				Hawaii	—	170,000	170,000
Illinois	755,250	37,300	792,550	Regional Totals	750	19,296,271	19,297,021
Indiana	3,120,396	177,350	3,297,746	Totals	985,390,924	299,433,765	1,284,824,689

¹ Alaska, Idaho, Michigan, Minnesota, Oregon, Washington, and Wisconsin received container seedlings produced in Canada.

Data Trends

Nearly 1.3 billion forest tree seedlings were shipped from forest and conservation nurseries in the United States in fiscal year (FY) 2017. This production level is an increase of nearly 45 million seedlings compared with seedling production reported for

FY 2016 (Hernández et al. 2017). Based on the total number of seedlings shipped and the average number of seedlings planted per acre in each State, 2,460,543 ac (995,746 ha) of trees were planted during the fall 2016 through spring 2017 planting season. Table 3 shows overall production and regional trends.

Table 3. Total forest nursery seedling production, including region, by year, from FY 2012 through FY 2017.

Year	Total seedling production	West	East	South
FY 2017	1,284,824,689	151,321,764	67,595,266	1,065,907,659
FY 2016	1,260,216,076	152,785,327	72,314,630	1,035,094,369
FY 2015	1,302,237,795	175,464,446	95,417,986	1,031,355,363
FY 2014	1,217,607,888	115,620,820	85,684,417	1,015,564,370
FY 2013	1,181,554,535	96,344,063	102,066,671	983,143,801
FY 2012	1,190,552,819	170,975,830	81,672,547	936,918,542

FY = fiscal year.

Sources: This report, Harper et al. (2013, 2014), and Hernández et al. (2015, 2016).

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