

# Forest Nursery Seedling Production in the United States— Fiscal Year 2015

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## Abstract

Forest nursery production for the 2015 planting season was more than 1.3 billion forest tree seedlings with an estimated 2,367,705 ac (958,175 ha) of trees planted. Annual seedling production and acres of trees planted nationwide have increased steadily from 2013 to 2015.

## 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 (S&PF), this report includes State-by-State breakdowns, regional totals, and an analysis of data trends. Universities located in the southern, northeast, 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, however, caution must be used in drawing inferences.

## Methodology

The empirical data for this report were produced by S&PF in collaboration with Auburn University,

the University of Idaho, and Purdue University. All 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 12 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 plots collected by States 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 the estimates produced by 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 appear in the *Forest Nursery Seedling Production in the United States—Fiscal Year 2013* (Harper et al. 2014).

## Data Trends

A total of 1,302,237,795 forest tree seedlings were shipped from forest and conservation nurseries in the United States in fiscal year (FY) 2015. This total is an increase of 43,487,975 more than the forest nursery seedling reported for FY 2014 and is the

**Table 1.** Hardwood and conifer tree seedling production and acres planted for each state and each region during the 2014-2015 planting year.

State	Hardwood seedlings produced	Hardwood acres planted <sup>1</sup>	Conifer seedlings produced	Canadian conifer imports	Conifer acres planted <sup>1</sup>	Total seedlings produced	Total acres planted <sup>1</sup>	FIA data acres planted <sup>10</sup>
<b>Southeast</b>								
Florida <sup>2</sup>	1,832,000	3,331	34,770,870	—	63,220	36,602,870	66,551	140,247
Georgia <sup>2</sup>	5,265,000	9,573	336,420,272	—	611,673	341,685,272	621,246	196,602
North Carolina <sup>2</sup>	300,300	546	66,091,000	—	120,165	66,391,300	120,711	108,286
South Carolina <sup>2</sup>	2,104,629	3,827	128,406,645	—	233,467	130,511,274	237,293	55,479
Virginia <sup>2</sup>	834,800	1,518	29,521,000	—	53,675	30,355,800	55,192	92,707
<b>Regional Totals</b>	<b>10,336,729</b>	<b>18,794</b>	<b>595,209,787</b>	<b>—</b>	<b>1,082,200</b>	<b>605,546,516</b>	<b>1,100,993</b>	<b>593,320</b>
<b>South Central</b>								
Alabama <sup>2</sup>	223,450	406	123,250,223	—	224,091	123,473,673	224,497	263,720
Arkansas <sup>2</sup>	12,070,120	21,946	95,132,875	—	172,969	107,202,995	194,915	156,973
Kentucky <sup>3</sup>	143,500	330	11,500	—	21	155,000	351	1,479
Louisiana <sup>2</sup>	1,813,700	3,298	20,371,000	—	37,038	22,184,700	40,336	166,984
Mississippi <sup>2</sup>	1,356,900	2,467	79,996,000	—	145,447	81,352,900	147,914	192,746
Oklahoma <sup>2</sup>	482,725	878	2,389,754	—	4,345	2,872,479	5,223	25,434
Tennessee <sup>2</sup>	1,716,000	3,120	5,267,000	—	9,576	6,983,000	12,696	22,489
Texas <sup>2</sup>	79,100	144	81,505,000	—	148,191	81,584,100	148,335	113,125
<b>Regional Totals</b>	<b>17,885,495</b>	<b>32,589</b>	<b>407,923,352</b>	<b>—</b>	<b>741,678</b>	<b>425,808,847</b>	<b>774,267</b>	<b>942,949</b>
<b>Northeast</b>								
Connecticut	—	—	—	—	—	—	—	—
Deleware	—	—	—	—	—	—	—	—
Maine <sup>5,9</sup>	—	—	—	18,680,000	31,133	18,680,000	31,133	—
Maryland <sup>2</sup>	765,325	1,392	720,625	—	1,310	1,485,950	2,702	—
Massachusetts	—	—	—	—	—	—	—	8,284
New Hampshire <sup>3</sup>	14,200	33	74,730	—	172	88,930	205	—
New Jersey <sup>3</sup>	157,400	362	—	—	168	230,275	530	—
New York <sup>5</sup>	173,000	288	—	—	860	689,000	1,148	203
Pennsylvania <sup>3</sup>	1,167,086	2,683	—	—	2,260	2,149,986	4,943	1,391
Rhode Island	—	—	—	—	—	—	—	—
Vermont	—	—	—	—	—	—	—	—
West Virginia <sup>3</sup>	521,325	1,198	143,050	—	329	664,375	1527	—
<b>Regional Totals</b>	<b>2,798,336</b>	<b>5,956</b>	<b>2,510,180</b>	<b>18,680,000</b>	<b>36,232</b>	<b>23,988,516</b>	<b>42,188</b>	<b>9,878</b>
<b>North Central</b>								
Illinois <sup>3</sup>	971,075	2,232	175,100	—	403	1,146,175	2,635	5,062
Indiana <sup>4</sup>	2,921,714	4,495	439,881	—	677	3,361,595	5,172	1,331
Iowa <sup>5</sup>	702,735	1,171	122,075	—	203	824,810	1,374	—
Michigan <sup>2,9</sup>	2,065,774	3,756	39,536,346	480,000	72,757	42,082,120	76,513	11,899
Minnesota <sup>2,9</sup>	813,300	1,479	6,955,500	4,300,000	12,646	12,068,800	14,125	20,059
Missouri <sup>3</sup>	1,359,450	3,125	841,755	—	20,465	2,201,205	23,590	—
Ohio <sup>3</sup>	13,000	30	—	—	—	13,000	30	3,775
Wisconsin <sup>6,9</sup>	1,100,807	1,376	6,330,958	2,300,000	7,914	9,731,765	9,290	9,413
<b>Regional Totals</b>	<b>9,947,855</b>	<b>17,664</b>	<b>54,401,615</b>	<b>7,080,000</b>	<b>115,065</b>	<b>71,429,470</b>	<b>124,922</b>	<b>51,540</b>

State	Hardwood seedlings produced	Hardwood acres planted <sup>1</sup>	Conifer seedlings produced	Canadian conifer imports	Conifer acres planted <sup>1</sup>	Total seedlings produced	Total acres planted <sup>1</sup>	FIA data acres planted <sup>10</sup>
<b>Great Plains</b>								
Kansas <sup>2</sup>	222,675	405	114,150	—	—	336,825	405	—
Nebraska <sup>2</sup>	82,395	150	1,539,430	—	—	1,621,825	150	—
North Dakota <sup>2</sup>	8,800	16	742,250	—	—	751,050	16	—
South Dakota <sup>2</sup>	800,017	1,455	372,783	—	—	1,172,800	1,455	—
<b>Regional Totals</b>	<b>1,113,887</b>	<b>2,026</b>	<b>2,768,613</b>	<b>—</b>	<b>—</b>	<b>3,882,500</b>	<b>2,026</b>	<b>—</b>
<b>Intermountain</b>								
Arizona <sup>2</sup>	200,000	364	20,000	—	36	220,000	400	—
Colorado <sup>2</sup>	209,041	380	201,852	—	367	410,893	747	—
Idaho <sup>2</sup>	3,470,160	6,309	5,922,595	1,500,000	13,495	10,892,755	19,804	4,287
Montana <sup>2</sup>	130,768	238	725,916	—	1,320	856,684	1,558	5,142
Nevada <sup>2</sup>	85,453	155	1,705	—	3	87,158	158	—
New Mexico <sup>2</sup>	28,420	52	33,957	62	—	62,377	114	—
Utah <sup>2</sup>	1,125,000	2,045	650,175	—	1,182	1,775,175	3,227	—
Wyoming	—	—	—	—	—	—	—	—
<b>Regional Totals</b>	<b>5,248,842</b>	<b>9,543</b>	<b>7,556,200</b>	<b>1,500,000</b>	<b>16,465</b>	<b>14,305,042</b>	<b>26,008</b>	<b>9,429</b>
<b>Alaska</b>								
Alaska <sup>2</sup>	4,000	7	3,200	620,000	1,127	627,200	1,134	806
<b>Pacific Northwest</b>								
Oregon <sup>7,9</sup>	32,461,904	92,748	61,357,066	1,850,000	180,592	95,668,970	273,340	88,379
Washington <sup>7,9</sup>	1,554,267	4,441	45,936,574	150,000	131,676	47,640,841	136,117	54,179
<b>Regional Totals</b>	<b>34,016,171</b>	<b>97,189</b>	<b>107,293,640</b>	<b>2,000,000</b>	<b>312,268</b>	<b>143,309,811</b>	<b>409,457</b>	<b>142,558</b>
<b>Pacific Southwest</b>								
California <sup>8</sup>	100,835	224	12,936,000	—	28,747	13,036,835	28,791	29,535
Hawaii <sup>8</sup>	272,353	605	30,705	—	68	303,058	673	—
<b>Regional Totals</b>	<b>373,188</b>	<b>829</b>	<b>12,966,705</b>	<b>—</b>	<b>28,815</b>	<b>13,339,893</b>	<b>29,464</b>	<b>29,535</b>
<b>Totals</b>	<b>81,720,503</b>	<b>184,590</b>	<b>1,190,630,092</b>	<b>29,880,000</b>	<b>2,332,723</b>	<b>1,302,237,795</b>	<b>2,510,459</b>	<b>1,779,209</b>

<sup>1</sup> Acres planted were estimated assuming:

<sup>2</sup> 550 stems/acre

<sup>3</sup> 435 stems/acre

<sup>4</sup> 650 stems/acre

<sup>5</sup> 600 stems/acre

<sup>6</sup> 800 stems/acre

<sup>7</sup> 350 stems/acre

<sup>8</sup> 450 stems/acre

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

<sup>10</sup> FIA = Forest Inventory and Analysis; average annual acreage planted estimated for all States (2012) on 5-year cycles, except for Alaska, Louisiana, Mississippi, and North Carolina, which are on 7-year cycles, and for Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, and Washington, which are on 10-year cycles. Data generated by R. Harper.

**Table 2.** Bareroot and container tree seedling production for each state and each region during the 2014-2015 planting year.

State	Bareroot	Container <sup>1</sup>	Total Seedlings Produced	State	Bareroot	Container <sup>1</sup>	Total Seedlings Produced
<b>Southeast</b>				Minnesota	4,978,800	2,790,000	7,768,800
Florida	28,374,470	8,228,400	36,602,870	Missouri	2,201,205	—	2,201,205
Georgia	180,937,000	160,748,272	341,685,272	Ohio	—	3,000	13,000
North Carolina	51,274,300	15,117,000	66,391,300	Wisconsin	7,429,115	2,650	7,431,765
South Carolina	129,282,658	1,228,616	130,511,274	Canada	—	7,080,000	7,080,000
Virginia	30,355,800	—	30,355,800	<b>Regional Totals</b>	<b>60,693,500</b>	<b>10,735,970</b>	<b>71,429,470</b>
<b>Regional Totals</b>	<b>420,224,228</b>	<b>185,322,288</b>	<b>605,546,516</b>	<b>Great Plains</b>			
<b>South Central</b>				Kansas	134,175	202,650	336,825
Alabama	116,710,673	6,763,000	123,473,673	North Dakota	695,000	56,050	751,050
Arkansas	107,202,995	—	107,202,995	Nebraska	765,810	856,015	1,621,825
Kentucky	155,000	—	155,000	South Dakota	1,145,891	26,909	1,172,800
Louisiana	14,052,700	8,132,000	22,184,700	<b>Regional Totals</b>	<b>2,740,876</b>	<b>1,141,624</b>	<b>3,882,500</b>
Mississippi	72,831,000	8,521,900	81,352,900	<b>Intermountain</b>			
Oklahoma	2,753,850	118,629	2,872,479	Arizona	—	220,000	220,000
Tennessee	6,983,000	—	6,983,000	Colorado	410,893	—	410,893
Texas	81,584,100	—	81,584,100	Idaho	5,619,934	3,772,821	9,392,755
<b>Regional Totals</b>	<b>402,273,318</b>	<b>23,535,529</b>	<b>425,808,847</b>	Montana	110,049	746,635	856,684
<b>Northeast</b>				New Mexico	—	62,377	62,377
Connecticut	—	—	—	Nevada	—	87,158	87,158
Delaware	—	—	—	Utah	—	1,775,175	1,775,175
Maine <sup>5,9</sup>	—	—	—	Wyoming	—	—	—
Maryland	1,485,950	—	1,485,950	Canada	—	1,500,000	1,500,000
Massachusetts	-	—	-	<b>Regional Totals</b>	<b>6,140,876</b>	<b>8,164,166</b>	<b>14,305,042</b>
New Hampshire	88,930	—	88,930	<b>Alaska</b>			
New Jersey	230,275	—	230,275	Alaska	—	7,200	7,200
New York	655,000	34,000	689,000	Canada	—	620,000	620,000
Pennsylvania	1,438,986	711,000	2,149,986	<b>Regional Totals</b>	—	<b>627,200</b>	<b>627,200</b>
Rhode Island	—	—	—	<b>Pacific Northwest</b>			
Vermont	—	—	—	Oregon	46,828,146	46,990,824	93,818,970
West Virginia	664,375	—	664,375	Washington	36,867,000	10,623,841	47,490,841
Canada	—	18,680,000	18,680,000	Canada	—	2,000,000	2,000,000
<b>Regional Totals</b>	<b>4,563,516</b>	<b>19,425,000</b>	<b>23,988,516</b>	<b>Regional Totals</b>	<b>83,695,146</b>	<b>59,614,665</b>	<b>143,309,811</b>
<b>North Central</b>				<b>Pacific Southwest</b>			
Illinois	1,145,225	950	1,146,175	California	—	13,036,835	13,036,835
Indiana	3,198,345	163,250	3,361,595	Hawaii	—	303,058	303,058
Iowa	804,810	20,000	824,810	<b>Regional Totals</b>	—	<b>13,339,89</b>	<b>13,339,893</b>
Michigan	40,936,000	666,120	41,602,120	<b>Totals</b>	<b>980,331,460</b>	<b>321,906,335</b>	<b>1,302,237,795</b>

<sup>1</sup> Alaska, Idaho, Maine, Michigan, Minnesota, Oregon, Washington, and Wisconsin received container seedlings produced in Canada.

second consecutive year with a 3-percent increase in the number of seedlings produced compared with the number produced in the previous fiscal year (Harper et al. 2014, Hernández et al. 2015). Some of the increases are attributable to a concerted effort to increase the response rate of forest and conservation nurseries to the production survey, especially in the Western and Northeastern States.

Using the total number of seedlings shipped and the average number of seedlings planted per acre in each State, we estimate that approximately 2,367,705 ac (958,176 ha) of trees were planted during the fall 2014 through spring 2015 planting season, a 3-percent increase compared with the number of acres reported for the previous planting season (Hernández et al. 2015). Trends by regions (table 3) are as follows:

**Table 3.** Total forest nursery seedling production, including region, by year, from FY 2012 through FY 2015.

Year	Total seedling production	West	East	South
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).

## West

The 17 States in the USDA Forest Service western regions produced more than 175 million seedlings, 59 million more than in the FY 2014 planting season and 13 percent of the U.S. total.

## East

The 20 States in the USDA Forest Service Northeastern Area reported 95 million seedlings, an increase of more than 15 million seedlings compared with the FY 2014 planting season and 5 percent of the U.S. total.

## South

The 13 States in the USDA Forest Service Southern Region produced more than 1 billion forest tree seedlings (82 percent of the U.S. total) with an increase of nearly 16 million during the FY 2014 planting season.

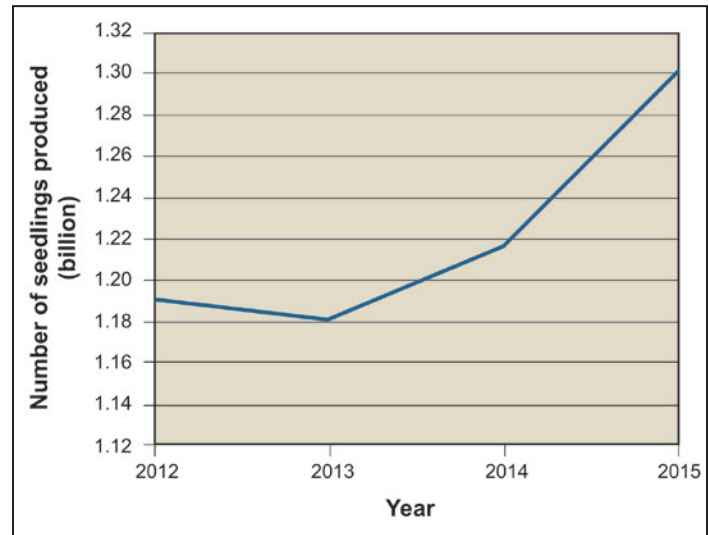
Overall, forest nursery seedling production increased steadily during the past 4 years (figure 1; table 3). This steady increase could reflect the continuing high volume of timber product exports and a slight increase in new home construction starts.

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**Figure 1.** Seedling production in the United States has increased during the past 4 years.

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