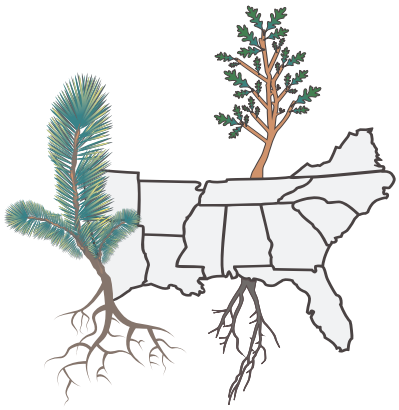

Auburn University Southern Forest Nursery Management Cooperative

TECHNICAL NOTE 17-01

FOREST TREE SEEDLING PRODUCTION IN THE SOUTHERN UNITED STATES FOR THE 2016 – 2017 PLANTING SEASON

by
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INTRODUCTION

To obtain information on the current seedling production in the southern United States, the Auburn University Southern Forest Nursery Management Cooperative conducted a survey of nursery managers in the region to determine seedling production numbers for the December 2016 to March 2017 planting season.

Data was obtained through a mailed questionnaire sent in June 2017 to 58 forest-tree nurseries in 13 southern states: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia. The questionnaire was two pages in length and asked for production (not sales) for the 2016-2017 nursery season for major pine and hardwood species. We contacted all nurseries, regardless of affiliation or ownership, including those not associated with the Southern Forest Nursery Management Cooperative. The mail survey was followed up by phone and email contact until all nurseries were accounted for. In addition, The Longleaf Alliance was contacted and longleaf seedling production by type was compared among both organizations to ensure that the smaller, non-Nursery Cooperative seedling producers were included. Of the 58 surveys mailed, responses were received from 43 nurseries that had reportable seedling production data. Despite repeated attempts, 15 nurseries did not respond to the survey in 2017, yet 6 of those had responded in previous years' production. So as to not underestimate seedling production, the numbers reported from those 6 nurseries were included in the 2016-2017 anayslsis. The 49 usable surveys (84% response) was a decrease of 1 nursery from the 50 nurseries reported in the 2016-2017 production season.

SURVEY RESULTS

Conifer Seedling Production: There was a total of 829,033,000 bareroot (Table 1) and 211,769,000 container-grown (Table 2) conifer seedlings produced during the 2016-2017 planting season, for a total conifer production of 1,040,802,000 seedlings (Table 3). This was an overall increase of 2.9% in total conifer seedlings; that breaks down to a 2.9% increase in bareroot seedling and a 3.1% increase in container-grown seedlings over the previous growing season (2015-2016). The overall 2.9% increase resulted in 29.3 MM more conifer seedlings than the 1,004,082,000 conifers

produced last growing season. Loblolly pine was the most commonly grown species (814,458,000 in the region), accounting for 78% of all conifer production, followed by slash pine pine (114.6 MM) at 11% and longleaf pine (92.7 MM) at 9% (Table 3). The production of longleaf pine in 2016-2017 was 5.8 MM fewer than the 98.5 MM produced in 2015-2016 and 18.4 MM fewer than the 111.1 MM produced in 2014-2015. While the 3-yr decrease in seedling production of longleaf pine could be an artifact due to the lack of survey participation of many of the non-Nursery Cooperative nurseries that produce container longleaf seedlings.

Like previous years, loblolly, longleaf and slash pine accounted for 98% of all conifers produced in 2016-17. Sand pine was the 4th most important species in terms of production at 7.5 MM (1%) which is down from 8.3 MM seedlings produced last year. The 5th most commonly produced conifer seedling was shortleaf pine, 5.6 MM, (Table 3) which is up from the 3.7 MM produced in 2015-2016. (Enebak 2016). White pine (2.3 MM) and baldcypress (1.2 MM) bring up the lower tier of conifer production with the "others" (pitch pine, Atlantic white cedar and pitch x loblolly) comprising 645 M of the remainder of the conifers grown in 2016-2017. The greatest increase in numbers produced was loblolly pine with 32.7 MM more seedlings produced in 2016-2017 than in the 2015-16 growing season. This increase in loblolly pine production occurred primarily in the private nursery sector. Of the conifer species produced in containers, longleaf and loblolly pine were the primary species grown, 88.8 MM and 100.4 MM, respectively. This is the first time since the SFNMC began collecting (2002-2003) seedling production data that the number of loblolly container seedlings was greater than the number longleaf container seedlings. As in previous years, 96% of all longleaf production was container-grown. In contrast, loblolly and slash pine comprised 12% and 16% of the container-grown conifers, respectively. Georgia was by far the Number 1 producer of container-grown conifers at 141.0 MM (67%) (Table 2) which was a decrease of 2.9 MM from 143.9 MM produced in the 2015-2016 growing season.

All states surveyed produced conifer nursery stock. The amount ranged from 347,678,000 in Georgia to 4.2 MM seedlings in Oklahoma. Georgia forest-tree nurseries produced 33% of all conifer planting stock in the southern United States. In terms of total conifer production, the order was: 1. Georgia (347.6 MM), 2. South Carolina (129.6 MM), 3. Alabama (105.5 MM), 4. Arkansas (87.0 MM), 5. Mississippi (85.6 MM), 6. Texas (78.3 MM), 7. North Carolina (73.5 MM), 8. Florida (56.5 MM), 9. Virginia (34.6 MM), 10. Louisiana (33.7 MM), 11. Oklahoma (4.28 MM) and 12. Tennessee (4.25 MM) (Table 3). The production of conifer seedlings in containers has increased dramatically since 2000. Container seedling production was estimated at perhaps 0.4 million in 1973, 3.5 million seedlings in 1980, and exceeds 211.7 MM seedlings annually today (Table 2). Currently, container-grown conifers are approximately 20% of the total seedling production, up from less than 3% in 2004 (Figure 1).

Hardwood Seedling Production: There was a total of 23,596,000 MM bareroot (Table 4) and 535,000 container-grown hardwood seedlings produced (Table 5); for a total hardwood seedling production of 24,131,000 seedlings in the 2016-2017 planting season (Table 6). This is a slight increase (1 MM) over the 23,112,000 seedings produced in the 2015-2016 season and stops the 3-yr slide of hardwood production since the 2012-2013 growing season. This years' production is still much less than the peak of 52 MM hardwood seedlings producted in 2006-2007 and 40.0 MM produced in the 2012-2013 growing season (Figure 2). The majority of the increase hardwood seedling production occurred in Arkansas (+2 MM) and Georgia (500 M). All other states had minimal hardwood seedling production changes. Since seedling production data collection started in 2000, it has not been unusal for hardwood seedling production to fluctuate considerably as the markets for these forest tree species varies year to year due to demand, cost share programs and seed availability.

Of the hardwood tree species produced, *Quercus* spp. was by far the most important genera with 62% of all hardwood production (15.0 MM) (Table 6). This is followed by "others" (5.4 MM; 23%), sweetgum (936 MM; 4%), sycamore (552 M; 2%), green ash (531 M;2%), pecan (528 M; 2%) and yellow poplar (488 M; 2%), flowering dogwood (351 M; 1%) and black walnut (79 M; 1%). Hardwoods were grown in all

states surveyed except Lousiana with seedling production ranging from from 11.2 MM in Arkansas (46%) to 34,000 in Texas.

This is the fifth season Eucalyptus as an individual species was tracked. Unlike the previous 2 years, when Eucalyptus was not reported on surveys returned to Auburn University, 175,000 Eucalyptus seedlings were reported in 2016-2017. Previous surveys had reported a significant reduction in Eucalyptus production over time. Eucalyptus production was 500,000 in 2014-2015, down from 1.5 MM in 2013-2014 which was less than the 1.9 MM produced in 2012-2013 and the 1.86 MM produced in 2011-2012. The decrease in Eucalyptus may be an artifact of missing nurseries that produce this hardwood species or planting demands have fallen off. Tree species in the "other" category include tree species such as persimmon, sugarberry, black gum, elm, maple, birch, hickory, cherry and redbud. The top four hardwood-producing states in the region were Arkansas (11.2 MM), Georgia (4.9 MM), Florida (2.6 MM), and Tennessee (1.6 MM) (Table 6).

Production by Ownership Category: In this survey, a "private" nursery means private ownership that is not part of an organization or company that operates a wood processing facility; therefor, "non-industrial." A state nursery is part of a state's reforestation program and an "industrial" nursery would be a nursery that owns and/or operates a wood processing facility. With the advent of Timber REITs and TIMOs this distinction/separation is getting blurred for organizations such as Plum Creek, Weyerhauser and Rayonier. For this growing season, the acquisition of Plum Creek by Weyerhauser and the subsequent spin off of some of those nurseries to IFCO only increased the categorical changes. For the 2016-2017 growing season, privately run nurseries (those organizations without a wood processing facility) produced 562,747,000 (53%) followed by industrial nurseries at 406,943,000 (38%) and state-run nurseries at 95,238,000 seedlings (9%) (Table 7). The ownership shift is apparent when you compare those numbers to last year's production with private nurseries at 610,261,000 seedlings (59%) followed by industrial nurseries at 336,615,000 (33%) and state run nurseries at 87,659,000 MM (8%) (Enebak 2016). This change, for now, slows the shift in seedling production from state and industrial nursery organizations to the private sector.

Among the two seedling stock types (bareroot or container), private nurseries supplied 85% of container-grown conifer planting stock (181.5 MM), followed by industry (22.7 MM; 11%), and state nurseries (8.1 MM; 4%). In the 2016-17 growing season, private-run nurseries produced more bareroot hardwood seedlings (11.7 MM; 50%) over either state (9.0 MM; 38%) or industrial nurseries (2.7 MM; 12%) (Table 7). In the previous (2015-16) growing season, private nurseries produced (12.2 MM; 54%) hardwood seedlings, state-run nurseries produced (7.9 MM; 35%), followed by industrial nurseries (2.5 MM; 11%) that continues to document the shift of seedling production from State to Privately-owned nurseries (Enebak 2016).

The separation of seedling production by stock type (container & bareroot), nursery owner (state, private, industry) and seedling type (conifer or hardwood) is shown in Tables 8 and 9. Georgia maintains its dominance in the conifer seedling market with 347.7 MM seedlings grown in 2016-2017 (Table 8) This is an increase from the 330.2 MM seedlings grown in 2015-2016 (Enebak 2016). Similar to previous years' (2008-2016) production, Arkansas gets the distinction of the largest hardwood producer again in 2016 with 11.2 MM hardwood seedlings grown (Table 9). While this is an increase from the 9.2 MM produced last year, the 2016 production is down slightly from the 12.0 MM produced in 2014-2015. Collectively, South Carolina gets the distinction of the second most productive state when it comes to nursery seedling production with 129.6 MM conifers and 640,000 hardwood seedlings produced (Tables 8 and 9). For many years, container seedling production was a small proportion (less than 5%) of the total seedlings produced in the southern United States. However, the percent of container production of the total production stock type has increased significantly since 2008 to about 20% over the past 4 years (Figure 1).

Seedling production for all stock types (container, bareroot) and tree type (conifer, hardwood) by forest

agency (State, Private, Industry) by state is shown in Table 10. The discontinuation of state tree improvement programs in Alabama, Louisiana, Mississippi and Texas has resulted in zeroes in their contribution to seedling production. Overall, Private forest-tree nurseries produced 562,749,000 (53%) of all seedlings grown in the southern United States. This was followed by Industrial nurseries 406,944,000 (38%) and State nurseries 95,241,000 (9%) (Table 10). Last year, private forest-tree nurseries produced 610.2 MM (59%) of all seedlings grown. This was followed by Industrial 336.6 MM (33%) nurseries and then State nurseries at 87.6 MM (8%) seedlings (Enebak 2016).

State Ranking and Changes from 2014-2015: A comparison of state-by-state ranking is provided in Table 11. For the most part, state by state production rankings remained the same with a few states switching positions The 2.9% overall increase in total seedling production in the southern US from last year was not distributed evenly across the southern region. While some states had an increase in seedling production, a number of states had reductions from last year's growing season. These were Alabama (9.8 MM; -9%), South Carolina (9.0 MM; -6%), Tennessee (1.5 MM; -21%) and Florida (1.3 MM; -2%). (Table 11). Despite the changes in seedling production within an individual state, it does not necessarily indicate a large change in regional production as seedling production region-wide is up from the previous years and continues an upward trend that started in 2010 after 10 years of decreasing seedling production (Figure 3).

Southern Forest Nursery Management Cooperative Seedling Production: Members of the Southern Forest Nursery Management Cooperative continue to lead in bareroot seedling production. Nearly 87% of all bareroot production in the southern United States is associated with Nursery Cooperative membership; 745.4 MM seedlings (Table 12). The percentage of container-grown seedlings is more evenly divided with Nursery Cooperative members accounting for 60% of container production (128.2 MM) which is up from the (108.8 MM) in 2014. The amount of container-grown seedlings within the Nursery Cooperative has been steadly increasing. Looking back a number of years, Nursery Cooperative members produced 106.8 MM in 2013, 90.2 MM in 2012, 86.1 MM in 2011, 62.9 MM in 2010 and 58.1 MM seedlings in 2009. Members of the Nursery Cooperative produce 82% of all forest-tree seedlings in the region which has held at 80-85% for years (Enebak 2012 - 2015).

Total Seedling Production: Collectively, the forest-tree nurseries surveyed in the southern United States produced 829,033,000 bareroot conifers, 211,769,000 container conifers 23,596,000 bareroot hardwoods and 535,000 container hardwoods during the 2016-2017 growing season. For conifers, this is an increase from the 806,024,000 bareroot conifers, an increase from the 205,402,000 container conifers and slight increase from the 22,717,000 bareroot hardwoods and 395,000 container hardwoods during the 2015 growing season. The total forest-tree seedlings produced during the 2016-2017 planting season was 1,064,928,000 seedlings and is the fourth year in a row above the billion seedling mark. Last year, the total forest-tree seedlings produced during the 2015-2016 planting season was 1,034,535,000 seedlings and ended the 4-yr streak of producing less than a billion seedlings annually. The 2.9% increase in seedling production (30.0 MM) this past planting season continues to increase and ends a downward trend of seedling production that started in 1998. The overall trend of seedling production for all species and stock type in the southern United States is shown in Figure 3. Last year, there was speculation as to the fate of the four nurseries closed after the Weyerheuser purchase of Plum Creek. Collectively, those four nurseries produced a 4-yr average of 149,000,000 seedlings annually and their purchase by IFCO in early 2017 ensured seedling production levels similar to previous years.

Management Implications: This seedling production data is for the 2016-2017 planting season, not what is **currently** being produced and planted this season (2017-2018) in the southern United States. Therefore, the seedling production numbers discussed in this report lag 1-year behind. Another shortcoming of this particular survey tool is that the number of seedlings produced reported do not necessarily translate into acres planted within each state surveyed or by land-ownership category. It is not uncommon for seedlings produced in Alabama to be shipped into Mississippi or vice versa. The data is collected as production, so

any information on actual seedling sales or seedlings planted by state, or land-ownership category is simply not available. What these numbers do provide is a good estimate of seedlings (species, planting stock, etc.) that were planted by non-industrial land-owners, forest industry, REITs or TIMOs during the 2016–2017 planting season. A simple estimate of the acres planted across the region could be made by dividing the number of seedlings produced (1,064,934,000) by 600 seedlings per acre for a minimum of 1,774,898 acres planted in 2016-2017. This is up from the 1,724,225 acres planted in 2015-2016 planting seasons. Previous acreage would be 1,718,920 acres planted in 2014-2015, 1,678,615 total acres planted in 2013-2014 and 1,656,820 acres planted in 2012-2013 season.

ACKNOWLEDGEMENTS

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Figure 1. Conifer seedling production (x 1000) by stock type in the southern United States; 2002-2016.

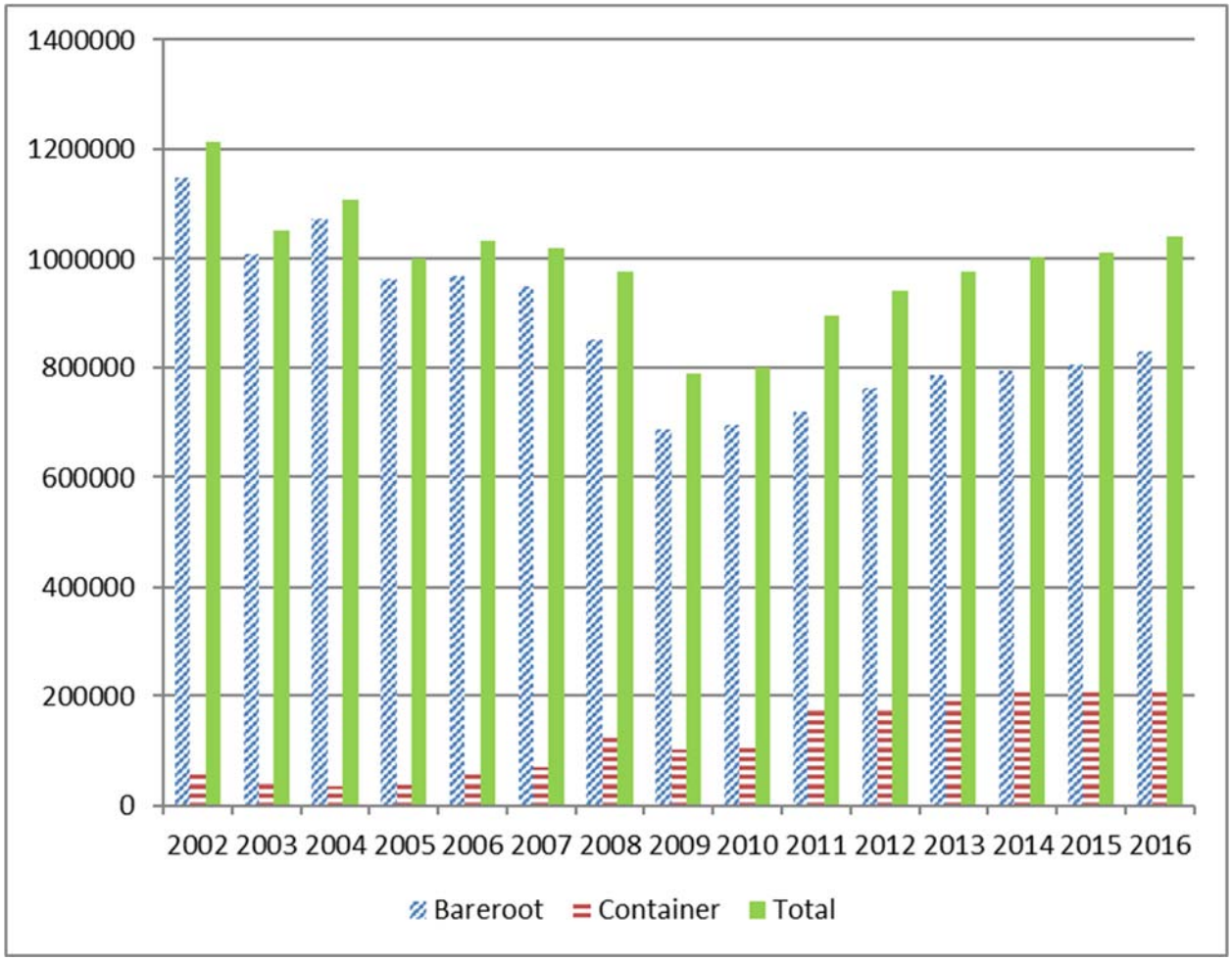

Figure 2. Hardwood seedling production (x MM) by stock type in the southern United States;2005-2015.

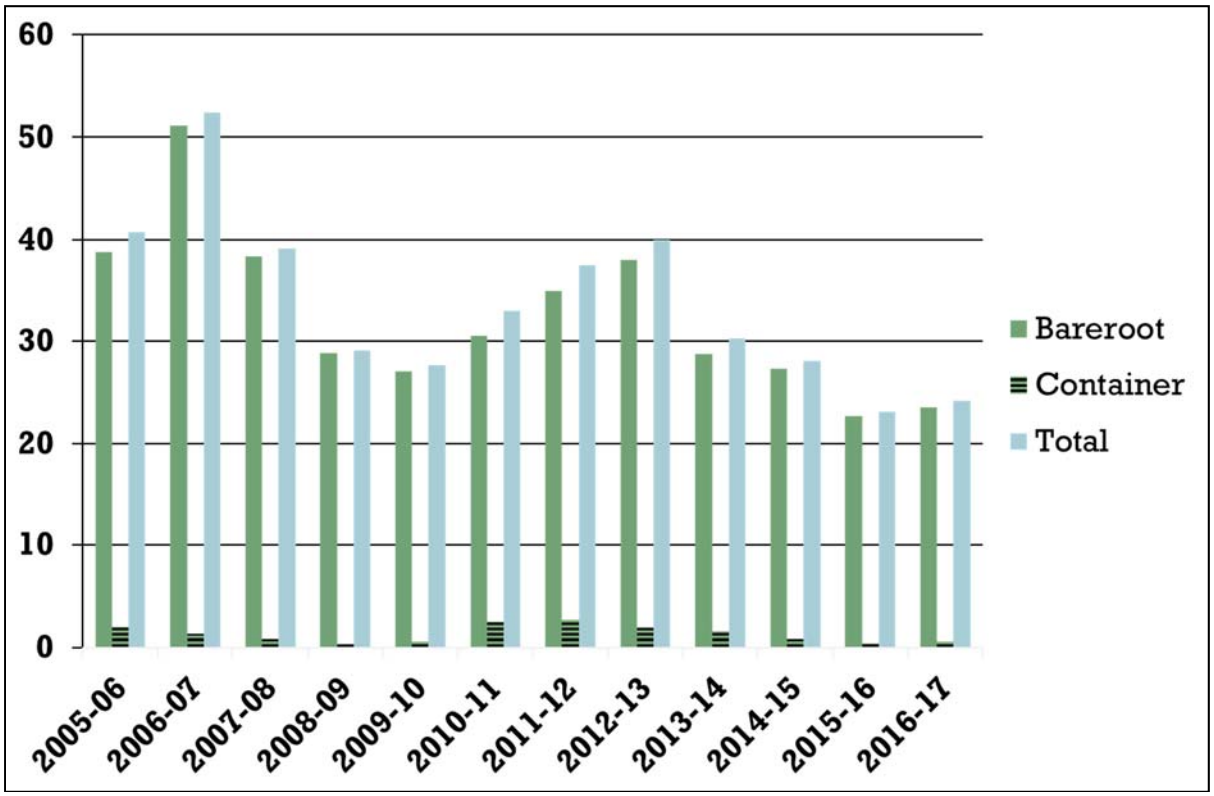

Figure 3. Seedling production (x 1000) for all species and stock types in the southern United States; 1997-2016.

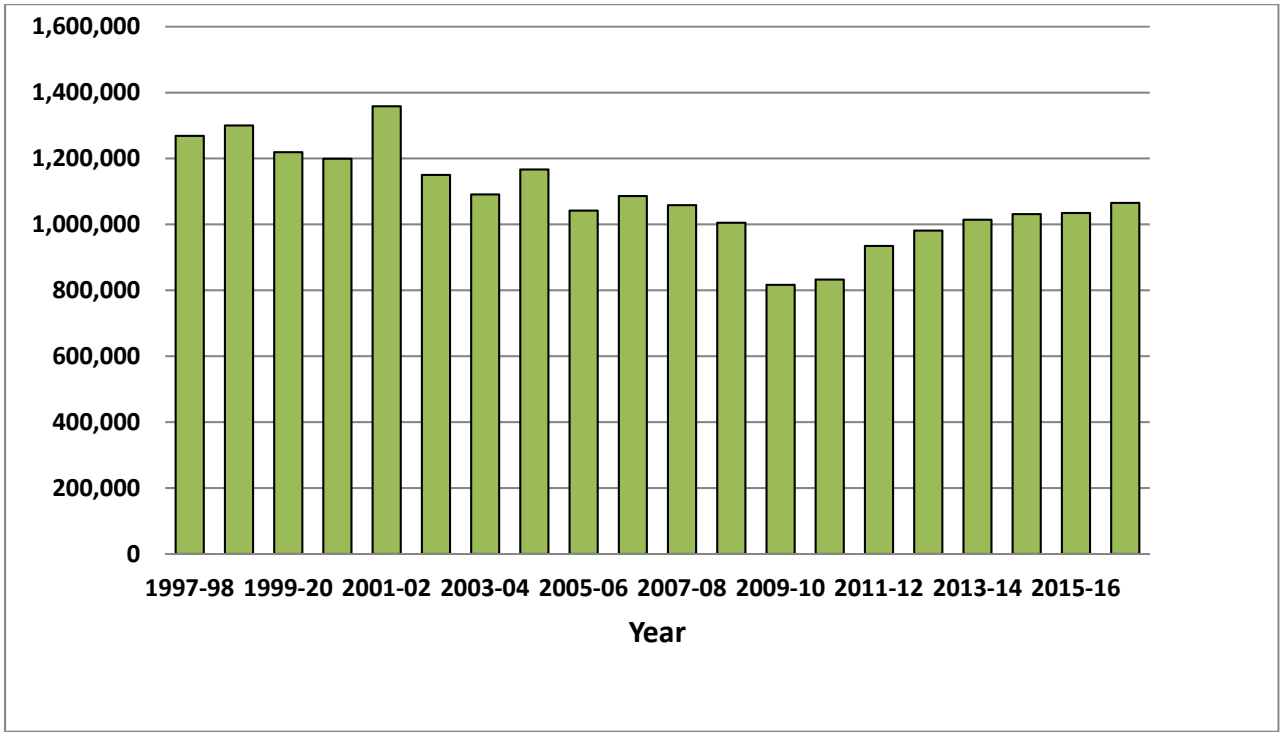

Table 1. Bareroot conifer seedling production by state for the 2016-2017 planting season across the South for various species. (X 1000)

STATE	BALDCYPRESS		FRASER FIR		LOBLOLLY		LONGLEAF		OTHERS		SAND		SHORTLEAF		SLASH		VIRGINIA		WHITE		TOTAL	
		%*		%*		%*		%*				%*		%*		%*		%*		%*		%**
AL	12	0	0	0	92,313	94	0	0	0	0	181	0	0	0	5,389	6	55	0	0	0	97,950	12
AR	482	1	0	0	86,460	99	0	0	0	0	0	0	94	0	0	0	0	0	0	0	87,036	10
FL	340	1	0	0	4,796	9	2,485	5	88	0	5,113	10	20	0	39,100	75	43	0	0	0	51,985	6
GA	68	0	0	0	160,512	78	1,150	1	0	0	2,200	1	443	0	41,649	20	341	0	251	0	206,614	25
LA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MS	40	0	0	0	75,500	99	0	0	0	0	0	0	0	0	550	1	0	0	0	0	76,090	9
NC	80	0	570	1	57,700	97	0	0	1	0	0	0	175	0	0	0	16	0	850	1	59,392	7
OK	28	1	0	0	3,393	86	0	0	134	3	0	0	321	8	0	0	68	2	0	0	3,944	0
SC	72	0	0	0	126,877	99	115	0	169	0	0	0	12	0	1,500	1	28	0	6	0	128,779	16
TN	74	2	0	0	3,430	81	0	0	6	0	0	0	351	8	0	0	107	3	284	7	4,252	1
TX	12	0	0	0	70,025	89	0	0	0	0	0	0	0	0	8,192	10	157	0	0	0	78,386	9
VA	33	0	0	0	32,995	95	0	0	230	1	0	0	361	1	0	0	76	0	910	3	34,605	4
REGION	**1,241**	**0**	**570**	**0**	**714,001**	**86**	**3,750**	**0**	**628**	**0**	**7,494**	**1**	**1,777**	**0**	**96,380**	**12**	**891**	**0**	**2,301**	**0**	**829,033**	

*Percent of state production **Percent of regional production

Table 2. Container-grown conifer seedling production by state for the 2016-2017 planting season across the South for various species. (X 1000)

STATE	BALDCYPRESS		FRASER FIR		LOBLOLLY		LONGLEAF		OTHERS		SAND		SHORTLEAF		SLASH		VIRGINIA		WHITE		TOTAL	
		%*		%*		%*		%*				%*		%*		%*		%*		%*		%**
AL	0	0	0	0	6,830	90	746	10	0	0	0	0	0	0	0	0	0	0	0	0	7,576	4
AR	0	0	0	0	31	51	0	0	0	0	0	0	30	49	0	0	0	0	0	0	61	0
FL	0	0	0	0	0	0	4,139	92	0	0	0	0	0	0	362	8	0	0	0	0	4,501	2
GA	0	0	0	0	51,709	37	69,735	49	0	0	0	0	2,050	1	17,551	12	19	0	0	0	141,064	67
LA	0	0	0	0	28,089	83	3,715	11	0	0	0	0	1,553	5	349	1	0	0	0	0	33,706	16
MS	0	0	0	0	9,500	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9,500	4
NC	0	0	200	1	3,950	28	9,800	69	0	0	0	0	190	1	0	0	0	0	0	0	14,140	7
OK	0	0	0	0	338	99	0	0	0	0	0	0	3	1	0	0	2	1	0	0	343	0
SC	0	0	0	0	10	1	841	97	17	2	0	0	2	0	0	0	0	0	0	0	870	0
TN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TX	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VA	0	0	0	0	0	0	8	100	0	0	0	0	0	0	0	0	0	0	0	0	8	0
REGION	**0**	**0**	**200**	**0**	**100,457**	**47**	**88,984**	**42**	**17**	**0**	**0**	**0**	**3,828**	**2**	**18,262**	**9**	**21**	**0**	**0**	**0**	**211,769**	

*Percent of state production **Percent of regional production

Table 3. Conifer seedling production by state for the 2016-2017 planting season across the South for various species. (X 1000)

STATE	BALDCYPRESS		FRASER FIR		LOBLOLLY		LONGLEAF		OTHERS		SAND		SHORTLEAF		SLASH		VIRGINIA		WHITE		TOTAL	
		%*		%*		%*		%*		%*		%*		%*		%*		%*		%*		%**
AL	12	0	0	0	99,143	94	746	1	0	0	181	0	0	0	5,389	5	55	0	0	0	105,526	10
AR	482	1	0	0	86,491	99	0	0	0	0	0	0	124	0	0	0	0	0	0	0	87,097	8
FL	340	1	0	0	4,796	8	6,624	12	88	0	5,113	9	20	0	39,462	70	43	0	0	0	56,486	5
GA	68	0	0	0	212,221	61	70,885	20	0	0	2,200	1	2,493	1	59,200	17	360	0	251	0	347,678	33
LA	0	0	0	0	28,089	83	3,715	11	0	0	0	0	1,553	5	349	1	0	0	0	0	33,706	3
MS	40	0	0	0	85,000	99	0	0	0	0	0	0	0	0	550	1	0	0	0	0	85,590	8
NC	80	0	770	1	61,650	84	9,800	13	1	0	0	0	365	0	0	0	16	0	850	1	73,532	7
OK	28	1	0	0	3,731	87	0	0	134	3	0	0	324	8	0	0	70	2	0	0	4,287	0
SC	72	0	0	0	126,887	98	956	1	186	0	0	0	14	0	1,500	1	28	0	6	0	129,649	12
TN	74	2	0	0	3,430	81	0	0	6	0	0	0	351	8	0	0	107	3	284	7	4,252	0
TX	12	0	0	0	70,025	89	0	0	0	0	0	0	0	0	8,192	10	157	0	0	0	78,386	8
VA	33	0	0	0	32,995	95	8	0	230	1	0	0	361	1	0	0	76	0	910	3	34,613	3
REGION	**1,241**	**0**	770	**0**	814,458	**78**	**92,734**	**9**	**645**	**0**	**7,494**	**1**	**5,605**	**1**	**114,642**	**11**	**912**	**0**	**2301**	**0**	**1,040,802**	

*Percent of state production **Percent of regional production

able 4. Bareroot hardwood seedling production by state for the 2016-2017 planting season across the South for various species. (X 1000)

STATE	DOGWOOD		EUCALYPTUS		GREEN ASH		OAK		OTHERS		PECAN		SWEETGUM		SYCAMORE		WALNUT		YEL. POPLAR		TOTAL	
		%		%		%		%		%		%		%		%		%		%		%
AL	0	0	0	0	0	0	577	99	0	0	0	0	0	0	0	0	0	0	3	1	580	2
AR	16	0	0	0	0	0	8,509	76	1,928	17	388	0	252	2	26	0	21	0	39	0	11,179	47
FL	110	4	0	0	133	5	1,463	58	199	8	7	0	272	11	102	4	4	0	241	10	2,531	11
GA	82	2	0	0	238	5	1,315	29	2,662	59	32	1	0	0	133	3	0	0	39	1	4,501	19
LA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MS	0	0	0	0	0	0	825	95	0	0	0	0	0	0	0	0	0	0	40	5	865	4
NC	8	3	0	0	7	2	230	72	0	0	0	0	5	2	30	9	5	2	35	11	320	1
OK	4	1	0	0	0	0	229	41	270	49	2	0	0	0	25	4	26	5	0	0	556	2
SC	4	1	0	0	108	17	266	42	67	10	0	0	0	0	183	29	2	0	9	1	639	3
TN	17	1	0	0	0	0	1,099	67	244	15	98	6	100	6	22	1	0	0	55	3	1,635	7
TX	0	0	0	0	0	0	34	100	0	0	0	0	0	0	0	0	0	0	0	0	34	0
VA	109	14	0	0	45	6	450	60	73	10	0	0	0	0	31	4	21	3	27	4	756	3
REGION	**350**	**1**	**0**	**0**	**531**	**2**	**14,997**	**64**	**5,443**	**23**	**527**	**2**	**629**	**3**	**552**	**2**	**79**	**0**	**488**	**2**	**23,596**	

*Percent of state production **Percent of regional production

Table 5. Container-grown hardwood seedling production by state for the 2016-2017 planting season across the South for various species. (X 1000)

STATE	DOGWOOD		EUCALYPTUS		GREEN ASH		OAK		OTHERS		PECAN		SWEETGUM		SYCAMORE		WALNUT		YEL. POPLAR		TOTAL	
		%		%		%		%		%		%		%		%		%		%		%
AL	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	10	2
AR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FL	1	3	0	0	0	0	14	36	23	59	1	3	0	0	0	0	0	0	0	0	39	7
GA	0	0	175	36	0	0	0	0	0	0	0	0	307	64	0	0	0	0	0	0	482	90
LA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OK	0	0	0	0	0	0	4	100	0	0	0	0	0	0	0	0	0	0	0	0	4	1
SC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TX	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
REGION	**1**	0	**175**	33	**0**	0	**28**	5	**23**	4	**1**	0	**307**	57	**0**	0	**0**	0	**0**	0	**535**	

*Percent of state production **Percent of regional production

Table 6. Hardwood seedling production by state for the 2016-2017 planting season across the South for various species. (X 1000)

STATE	DOGWOOD		EUCALYPTUS		GREEN ASH		OAK		OTHERS		PECAN		SWEETGUM		SYCAMORE		WALNUT		YEL. POPLAR		TOTAL	
		%		%		%		%		%		%		%		%		%		%		%
AL	0	0	0	0	0	0	587	99	0	0	0	0	0	0	0	0	0	0	3	1	590	2
AR	16	0	0	0	0	0	8,509	76	1,928	17	388	3	252	2	26	0	21	0	39	0	11,179	46
FL	111	4	0	0	133	5	1,477	57	222	9	8	0	272	11	102	4	4	0	241	9	2,570	11
GA	82	2	175	4	238	5	1,315	26	2,662	53	32	1	307	6	133	3	0	0	39	1	4,983	21
LA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MS	0	0	0	0	0	0	825	95	0	0	0	0	0	0	0	0	0	0	40	5	865	4
NC	8	3	0	0	7	2	230	72	0	0	0	0	5	2	30	9	5	2	35	11	320	1
OK	4	1	0	0	0	0	233	42	270	48	2	0	0	0	25	4	26	5	0	0	560	2
SC	4	1	0	0	108	17	266	42	67	10	0	0	0	0	183	29	2	0	9	1	639	3
TN	17	1	0	0	0	0	1,099	67	244	15	98	6	100	6	22	1	0	0	55	3	1,635	7
TX	0	0	0	0	0	0	34	100	0	0	0	0	0	0	0	0	0	0	0	0	34	0
VA	109	14	0	0	45	6	450	60	73	10	0	0	0	0	31	4	21	3	27	4	756	3
REGION	**351**	**1**	**175**	**1**	**531**	**2**	**15,025**	**62**	**5,466**	**23**	**528**	**2**	**936**	**4**	**552**	**2**	**79**	**0**	**488**	**2**	**24,131**	

*Percent of state production **Percent of regional production

Table 7. Species production for the 2016-2017 planting season across the South by ownership category. (X 1000) (BR = bareroot, C= container)

TYPE	SPECIES	STATE		PRIVATE		INDUSTRY		TOTAL	TOTAL
			%*		%*		%*		%*
BR	BALDCYPRESS	593	48	595	48	52	4	**1,240**	0.1
	FRASER FIR	570	100	0	0	0	0	**570**	0.1
	LOBLOLLY	63,519	9	302,630	42	347,852	49	**714,001**	86.1
	LONGLEAF	2,103	56	1,647	44	0	0	**3,750**	0.5
	OTHERS	389	62	238	38	0	0	**627**	0.1
	SAND	408	5	4,705	63	2,381	32	**7,494**	0.9
	SHORTLEAF	1,353	76	423	24	0	0	**1,776**	0.2
	SLASH	6,700	7	58,501	61	31,180	32	**96,381**	11.6
	VIRGINIA	344	39	539	61	7	1	**890**	0.1
	WHITE	2,050	89	251	11	0	0	**2,301**	0.3
	TOTAL	78,029	9	369,529	45	381,472	46	**829,030**	77.85
C	BALDCYPRESS	0	0	0	0	0	0	**0**	0.0
	FRASER FIR	200	100	0	0	0	0	**200**	0.1
	LOBLOLLY	1,129	1	81,148	81	18,180	18	**100,457**	47.4
	LONGLEAF	6,188	7	78,250	88	4,546	5	**88,984**	42.0
	OTHERS	17	100	0	0	0	0	**17**	0.0
	SAND	0	0	0	0	0	0	**0**	0.0
	SHORTLEAF	229	6	3,600	94	0	0	**3,829**	1.8
	SLASH	362	2	17,900	98	0	0	**18,262**	8.6
	VIRGINIA	2	10	19	90	0	0	**21**	0.0
	WHITE	0	0	0	0	0	0	**0**	0.0
	TOTAL	**8,127**	**4**	**180,917**	**85**	**22,726**	**11**	**211,770**	19.89
BR	DOGWOOD	151	43	198	57	0	0	**349**	1.5
	EUCALYPTUS	0	0	0	0	0	0	**0**	0.0
	GREEN ASH	61	11	471	89	0	0	**532**	2.3
	OAK	6,796	45	6,002	40	2,199	15	**14,997**	63.6
	OTHERS	1,263	23	3,756	69	424	8	**5,443**	23.1
	PECAN	335	64	137	26	55	10	**527**	2.2
	SWEETGUM	130	21	487	78	11	2	**628**	2.7
	SYCAMORE	137	25	414	75	0	0	**551**	2.3
	WALNUT	75	95	4	5	0	0	**79**	0.3
	YEL. POPLAR	130	27	301	62	56	11	**487**	2.1
	TOTAL	**9,078**	**38**	**11,770**	**50**	**2,745**	**12**	**23,593**	2.22
C	DOGWOOD	0	0	1	100	0	0	**1**	0.2
	EUCALYPTUS	0	0	175	100	0	0	**175**	32.7
	GREEN ASH	0	0	0	0	0	0	**0**	0.0
	OAK	4	14	24	86	0	0	**28**	5.2
	OTHERS	0	0	23	100	0	0	**23**	4.3
	PECAN	0	0	1	100	0	0	**1**	0.2
	SWEETGUM	0	0	307	100	0	0	**307**	57.4
	SYCAMORE	0	0	0	0	0	0	**0**	0.0
	WALNUT	0	0	0	0	0	0	**0**	0.0
	YEL. POPLAR	0	0	0	0	0	0	**0**	0.0
	TOTAL	**4**	**1**	**531**	**99**	**0**	**0**	**535**	0.1
	Total Bareroot	87,107	10	381,299	45	384,217	45	**852,623**	80
	Total Container	**8,131**	**4**	**181,448**	**85**	**22,726**	**11**	**212,305**	20
ALL	REGION	95,238	9	562,747	53	406,943	**38**	**1,064,928**	

*Percent of species production for that ownership class

Table 8. Conifer seedling production for the 2016-2017 planting season across the South by ownership category. (X 1000) Private – nurseries owned by companies or individuals that do not own wood processing facilities, Industry – nurseries owned by companies that have wood processing facilities. Percents are calculated for each stock type within a state.

	Bareroot Conifer						Container Conifer						Conifer Seedling Production						
STATE	STATE	%	PRIVATE	%	INDUSTRY	%	STATE	%	PRIVATE	%	INDUSTRY	%	STATE	%	PRIVATE	%	INDUSTRY	%	TOTAL
AL	0	0	70,440	67	27,510	26	0	0	350	0	7,226	7	0	0	70,790	67	34,736	33	**105,526**
AR	2,998	3	34,366	39	49,671	57	62	0	0	0	0	0	3,060	4	34,366	39	49,671	57	**87,097**
FL	1,931	3	50,054	89	0	0	2,701	5	1,800	3	0	0	4,632	8	51,854	92	0	0	**56,486**
GA	13,894	4	88,514	25	104,207	30	4	0	141,060	41	0	0	13,898	4	229,574	66	104,207	30	**347,679**
LA	0	0	0	0	0	0	0	0	33,707	100	0	0	0	0	33,707	100	0	0	**33,707**
MS	0	0	23,950	28	52,140	61	0	0	0	0	9,500	11	0	0	23,950	28	61,640	72	**85,590**
NC	14,692	20	0	0	44,700	61	4,140	6	4,000	5	6,000	8	18,832	26	4,000	5	50,700	69	**73,532**
OK	3,942	92	0	0	0	0	343	8	0	0	0	0	4,285	100	0	0	0	0	**4,285**
SC	1,716	1	53,963	42	73,100	56	870	1	0	0	0	0	2,586	2	53,963	42	73,100	56	**129,649**
TN	4,252	100	0	0	0	0	0	0	0	0	0	0	4,252	100	0	0	0	0	**4,252**
TX	0	0	48,242	62	30,144	38	0	0	0	0	0	0	0	0	48,242	62	30,144	38	**78,386**
VA	34,605	100	0	0	0	0	8	0	0	0	0	0	34,613	100	0	0	0	0	**34,613**
REGION	**78,030**	**7**	**369,529**	**36**	**381,472**	**37**	**8,128**	**1**	**180,917**	**17**	**22,726**	**2**	**86,158**	**8**	**550,446**	**53**	**404,198**	**39**	**1,040,802**

Table 9. Hardwood seedling production for the 2016-2017 planting season across the South by ownership category. (X 1000) Private – nurseries owned by companies or individuals that do not own wood processing facilities, Industry – nurseries owned by companies that have wood processing facilities. Percents are calculated for each stock type within a state.

	Bareroot Hardwood						Container Hardwood						Hardwood Seedling Production						
STATE	STATE	%	PRIVATE	%	INDUSTRY	%	STATE	%	PRIVATE	%	INDUSTRY	%	STATE	%	PRIVATE	%	INDUSTRY	%	TOTAL
AL	0	0	580	98	0	0	0	0	10	2	0	0	0	0	590	100	0	0	**590**
AR	5,565	50	4,038	36	1,577	14	0	0	0	0	0	0	5,565	50	4,038	36	1,577	14	**11,180**
FL	0	0	2,530	98	0	0	0	0	40	2	0	0	0	0	2,570	100	0	0	**2,570**
GA	170	3	4,060	81	270	5	0	0	482	10	0	0	170	3	4,542	91	270	5	**4,982**
LA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
MS	0	0	0	0	865	100	0	0	0	0	0	0	0	0	0	0	865	100	**865**
NC	320	100	0	0	0	0	0	0	0	0	0	0	320	100	0	0	0	0	**320**
OK	556	99	0	0	0	0	4	1	0	0	0	0	560	100	0	0	0	0	**560**
SC	77	12	563	88	0	0	0	0	0	0	0	0	77	12	563	88	0	0	**640**
TN	1,635	100	0	0	0	0	0	0	0	0	0	0	1,635	100	0	0	0	0	**1,635**
TX	0	0	0	0	34	100	0	0	0	0	0	0	0	0	0	0	34	100	**34**
VA	756	100	0	0	0	0	0	0	0	0	0	0	756	100	0	0	0	0	**756**
REGION	**9,079**	**38**	**11,771**	**49**	**2,746**	**11**	**4**	**0**	**532**	**2**	**0**	**0**	**9,083**	**38**	**12,303**	**51**	**2,746**	**11**	**24,132**

Table 10. Seedling production for the 2016-2017 planting season across the South by ownership category. (X 1000) Private – nurseries owned by companies or individuals that do not own wood processing facilities, Industry – nurseries owned by companies that have wood processing facilities.

	TOTAL SEEDLING PRODUCTION							
STATE	**STATE**	**%***	**PRIVATE**	**%***	**INDUSTRY**	**%***	**TOTAL**	**%****
AL	0	0	71,380	67	34,736	33	106,116	10
AR	8,625	9	38,404	39	51,248	52	98,277	9
FL	4,632	8	54,424	92	0	0	59,056	6
GA	14,068	4	234,116	66	104,477	30	352,661	33
LA	0	0	33,707	100	0	0	33,707	3
MS	0	0	23,950	28	62,505	72	86,455	8
NC	19,152	26	4,000	5	50,700	69	73,852	7
OK	4,845	100	0	0	0	0	4,845	0
SC	2,663	2	54,526	42	73,100	56	130,289	12
TN	5,887	100	0	0	0	0	5,887	1
TX	0	0	48,242	62	30,178	38	78,420	7
VA	35,369	100	0	0	0	0	35,369	3
REGION	**95,241**	**9**	**562,749**	**53**	**406,944**	**38**	**1,064,934**	

*Percent of state production **Percent of regional production

Table 11. Change in seedling production from the 2014 to the 2016 nursery season.

STATE	2016-2017 Production (thousands)	RANK	% Change from Previous Yr
AL	106,116	3	-9
AR	98,277	4	-1
FL	59,056	8	-2
GA	352,661	1	5
LA	33,707	10	42
MS	86,455	5	3
NC	73,852	7	12
OK	4,845	12	269
SC	130,289	2	-6
TN	5,887	11	-21
TX	78,420	6	9
VA	35,369	9	14
Total	**1,064,934**		2.9

STATE	2015-2016 Production (thousands)	RANK	% Change from Previous Yr
AL	116,002	3	-6
AR	98,819	4	-8
FL	60,438	8	65
GA	334,834	1	-2
LA	23,735	10	7
MS	84,048	5	3
NC	65,838	7	-1
OK	1,313	12	-54
SC	139,304	2	7
TN	7,438	11	4
TX	71,728	6	-12
VA	31,040	9	2
Total	**1,034,537**		0.3

STATE	2014 - 2015 Production (thousands)	RANK	% Change from Previous Yr
AL	123,473	3	5
AR	107,203	4	-4
FL	36,602	8	3
GA	341,685	1	5
LA	22,185	10	53
MS	81,353	6	-2
NC	66,391	7	-9
OK	2,871	12	2
SC	130,511	2	6
TN	7,138	11	-6
TX	81,584	5	-3
VA	30,356	9	4
Total	**1,031,352**		2.4

Table 12. Auburn University's Southern Forest Nursery Management Cooperative representation in regional seedling production. (X 1000)

Source of Seedling Production	Total Production (thousands)	Percent *of source*	Percent *of total*
Bareroot – Nursery Coop Members	745,362	87	70
Bareroot – Non Coop Members	107,261	13	10
	852,623		
Container – Nursery Coop Members	128,154	60	12
Container - Non-Coop Members	84,151	40	8
	212,305		
Total – Nursery Coop Members	873,516		82
Total - Non-Coop Members	191,412		18
	1,064,928		