

# Forest Tree Seedling Production in the Southern United States: The 2005–2006 Planting Season

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## Abstract

This report summarizes nursery forest seedling production in the Southern United States for the 2005–2006 planting season. Seedling production is presented by nursery ownership class, seedling type (container or bareroot), and species grown. Survey data report 964,532,000 bareroot and 36,268,000 container-grown conifer seedlings for a total conifer production of 1,000,800,000. Total hardwood seedling production for the 12 States surveyed was 44,866,000, of which 38,816,000 were bareroot and 6,050,000, container grown. Total conifer and hardwood seedling production for the Southern United States in 2005–2006 was 1,045,666,000 seedlings. Seedling production and acres planted in 2004–2006 are compared with figures for the 1997–1998 planting seasons reported by the Forest Service for the region. Seedling production across the Southern United States is down 19 percent (254 million seedlings) from the 1997 planting season. It could be inferred from these figures that reforestation in the region has decreased correspondingly.

## Introduction

In the past, the Forest Service has collected seedling production and planting information and made this information public through publishing in *Tree Planters' Notes*. Unfortunately, the Forest Service has not been able to publish this information for several years. In order to obtain an idea of current seedling production in the South, the Auburn University Southern Forest Management Nursery Cooperative began surveying nursery managers in the region to determine production numbers for the previous planting seasons. What follows is the information on seedling production returned for the December 2005 to March 2006 planting season.

## Methods

Data were obtained through a questionnaire mailed in June 2006 to 99 nurseries in 12 Southern States: Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia. The two-page questionnaire asked for production (not sales) for the 2005–2006 nursery season for the conifer and hardwood tree species produced by each organization. Only nurseries with an estimated production above 500,000 bareroot or container seedlings were surveyed. We attempted to contact all such nurseries, regardless of affiliation or ownership, including those not associated with the Nursery Cooperative. The mail survey was followed up by phone contact until all nurseries were accounted for. Responses were received from 57 nurseries. This was a decline from the 66 nurseries reporting in a similar survey in 2005, but similar to the 56 nurseries reporting in 2004.

## Results

**Conifer Seedling Production.** Data compiled from the returned surveys indicated that 964,532,000 bareroot and 36,268,000 container-grown conifer seedlings were produced during the 2005–2006 season, for a total conifer production of 1.0008 billion (tables 1–3). Compared with the previous year, the 2005–2006 production decreased 10.9 percent in bareroot and increased 2.2 percent in container-grown seedling production, with an overall regional decrease from 1.1096 billion to 1.0008 billion conifer seedlings. Loblolly pine (*Pinus taeda*) was by far the most commonly grown tree species in the region, accounting for 82 percent of all conifer seedlings produced, followed by slash pine (*P. elliottii*), at 13 percent, and long-leaf pine (*P. palustris*), at 3 percent. These three conifer species accounted for 98 percent of all conifer production in the region. Bald cypress (*Taxodium distichum*) was the fourth most important species in terms of production (0.38 percent), followed by white pine (*Pinus strobus*), sand

pine (*P. clausa*), shortleaf pine, (*P. echinata*), Fraser fir (*Abies fraseri*), and Virginia pine (*Pinus virginiana*) (table 3). Interestingly, bald cypress was the only conifer grown in all 12 States surveyed. Only 3.6 percent of all conifer production was grown in containers, 64 percent of which was longleaf pine. Seventy percent of all longleaf pine production was container-grown, an increase of 7 percent from last year (63 percent).

All surveyed States produced conifer nursery stock, ranging from 185 million in Georgia to about 0.5 million in Oklahoma. Georgia produced 37 percent of all container-grown conifer planting stock in the region. In terms of total conifer, the order was (1) Georgia, (2) South Carolina, (3) Alabama, (4) Texas, (5) Arkansas, (6) Mississippi, (7) North Carolina, (8) Florida, (9) Virginia, (10) Louisiana, (11) Tennessee, and (12) Oklahoma (table 3).

**Hardwood Seedling Production.** Total hardwood seedling production (tables 4–6) for the 12 States surveyed was 44,864,000. This was a decrease of 12 million trees (21 percent) from the 2004–2005 seedling production survey. This reduction is most likely due to a decrease in region-wide production, as well as a lack of survey participation by hardwood nurseries. *Quercus* spp. was by far the most important genus, comprising 56 percent of all hardwood production reported. This is followed by the “others” category (26 percent), green ash (*Fraxinus americana*) (5 percent), sweetgum (*Liquidambar styraciflua*) (2 percent), flowering dogwood (*Cornus florida*) (1.6 percent), pecan (*Carya illinoensis*) (1 percent), yellow-poplar (*Liriodendron tulipifera*) (1 percent), sycamore (*Platanus occidentalis*) (2 percent), black walnut (*Juglans nigra*) (0.7 percent), and cottonwood (*Populus deltoides*) (0.4 percent). Hardwoods were grown in all States surveyed, ranging from 10.6 million in Arkansas to 1.1 million in Alabama. The top five hardwood-producing States in the region, in descending order, were Arkansas, Virginia, South Carolina, Louisiana, and Georgia.

**Production by Ownership Category.** The majority of regional seedling production occurred in industrial nurseries (68 percent), with State nurseries providing 18 percent of seedling supplies and private nurseries growing 14 percent (tables 7–10). A “private” nursery is privately owned but not part of an organization or company that operates a wood-processing facility—i.e., “nonindustrial.” There was little change from the 2004–2005 survey in terms of the proportion of total seedling production by owner category.

Private nurseries produced 50 percent of container-grown conifer planting stock in the region, followed by industrial (30 percent), and state-owned (20 percent). Industry increased its proportion of conifer container production from 20 percent to 30 percent from the 2004–2005 season to the 2005–2006 season, while private nurseries decreased their proportion from 62 percent to 50 percent.

**State Ranking and Changes from 2004–2005 Survey.** A State-by-State ranking is provided in table 11. The decline in seedling production is distributed across the growing region. Only Virginia and Arkansas increased seedling production in the region. Caution should be used when interpreting these data, as a large percentage change in an individual State does not necessarily indicate a large change in regional production. The most significant reduction occurred in Georgia, where the nurseries produced 83 million fewer seedlings than in the previous year.

**Nursery Cooperative Member Seedling Production.** Members of the Nursery Cooperative continue to lead the region in bareroot seedling production, with 86 percent of all bareroot production in the Southern United States associated with the Nursery Cooperative (table 12). This amount is about 8 percent higher than reported for the 2004–2005 production season (McNabb 2005). Nursery Cooperative members accounted for 30 percent of container production, up slightly from the 27 percent reported last year. Members of the Nursery Cooperative produce 83 percent of all seedlings in the region.

Table 1. Bareroot conifer seedling production (x1000) by State for the 2005–2006 planting season across the South.

State	Bald cypress		Fraser fir		Loblolly pine		Longleaf pine		Sand pine		Shortleaf pine		Slash pine		Virginia pine		White pine		Total	
	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>b</sup>
AL	83	0			133,307	93	778	1	300	0			9,405	7	27	0			143,900	15
AR	990	1			100,593	98					582	1							102,165	11
FL	840	2			5,400	11	5,675	11	790	2			38,070	75	65	0			50,840	5
GA	102	0			112,934	66	1,350	1	957	1	172	0	55,625	32	215	0			171,355	18
LA	255	1			20,645	70	300	1					8,313	28	50	0			29,563	3
MS	311	0			94,701	99							665	1					95,677	10
NC	103	0	1,500	3	55,400	94	176	0			580	1			80	0	1,000	2	58,839	6
OK	80	19			5	1					200	47			140	33			425	0
SC	63	0			151,731	96	1,688	1			15	0	4,022	3	89	0	171	0	157,779	16
TN	127	2			4,439	82					160	3			62	1	655	12	5,443	1
TX	190	0			106,029	92					80	0	8,344	7	263	0			114,906	12
VA	52	0			30,857	92					366	1			423	1	1,942	6	33,640	3
Region	3,196	0	1,500	0	816,041	85	9,967	1	2,047	0	2,155	0	124,444	13	1,414	0	3,768	0	964,532	

<sup>a</sup> Percent of State production.

<sup>b</sup> Percent of regional production.

Table 2. Container-grown conifer seedling production (x1000) by State for the 2005–2006 planting season across the South. No container-grown white pine was produced in the region during this period.

State	Bald cypress		Fraser fir		Loblolly pine		Longleaf pine		Sand pine		Shortleaf pine		Slash pine		Virginia pine		Total			
	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>b</sup>		
AL	2	0			3,101	43	3,856	53			170		40		110				7,279	20
AR					75	100													75	0
FL							3,349	98	13	0			60						3,422	9
GA	100	1			2,750	20	8,226	61	1,050	8			1,340	10					13,466	37
LA							400	100											400	1
MS							494	100											494	1
NC			220	3	3,466	42	4,640	56											8,326	23
OK					24	89									3	11			27	0
SC	519	31			1	0	1,140	69											1,660	5
TN																			0	0
TX	6	1			1	0	1,012	99											1,019	3
VA							100	100											100	0
Region	627	2	220	1	9,418	26	23,217	64	1,063	3	170	0	1,440	4	113	0			36,268	

<sup>a</sup> Percent of State production.

<sup>b</sup> Percent of regional production.

Table 5. Container-grown hardwood seedling production (x1000) by State for the 2005–2006 planting season across the South. There was no container-grown walnut production during this period.

State	Cottonwood		Dogwood		Green ash		Oak		Pecan		Sweetgum		Sycamore		Yellow-poplar		Others		Total		
	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>b</sup>	
AL			1	5	2	9	8	36							1	5	10	45		22	1
AR																					
FL																	1,036	100		1,036	17
GA			10	1			350	52	5	1	100	15	10	1			200	30		675	11
LA																					
MS																					
NC					2	17											10	83		12	1
OK																					
SC																	30	100		30	1
TN																					
TX	1	0					50	20	2	1	1	0	1	0			200	78		255	4
VA			1,310		440		1,220				640		410							4,020	66
Region	1	0	1,321	21	444	7	1,628	27	7	0	741	12	421	7	1	0	1,486	25		6,050	

<sup>a</sup>Percent of State production.

<sup>b</sup>Percent of regional production.

Table 6. Hardwood seedling production (x1000) by State for the 2005-2006 planting season across the South.

State	Cottonwood		Dogwood		Green ash		Oak		Pecan		Sweetgum		Sycamore		Walnut		Yellow-poplar		Others		Total	
	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>b</sup>
AL			9	1	11	1	883	74			13	1					17	1	253	21	1,186	2
AR	58	1	2	0	541	5	8,001	75	147	1	125	1			50	0	37	0	1,675	16	10,636	24
FL			50	3	50	3	400	21			100	5	50	3					1,287	66	1,937	4
GA			87	2	47	1	2,780	69	5	0	200	5	20	0			28	1	838	21	4,005	9
LA	99	2			367	9	3,229	78	185	4	4	0	72	2	16	0			193	5	4,165	9
MS					195	9	2,013	89											65	3	2,273	5
NC			70	4	34	2	976	62					21	1	40	3	48	3	386	25	1,575	3
OK			30	2	67	5	190	15	75	6			25	2	75	6			780	63	1,242	3
SC			85	2	103	2	1,780	32	19	0	107	2	148	3	2	0	128	2	3,138	57	5,510	12
TN			15	1	143	9	861	56	47	3	26	2	10	1	61	4	116	8	258	17	1,537	3
TX	1	0	27	1	160	7	1,351	61	91	4	57	3	1	0	35	2	20	1	473	21	2,216	5
VA			1,594	19	706	8	2,629	31			705	8	522	5	26	1	132	1	2,270	26	8,584	19
Region	158	1	1,969	4	2,424	5	25,093	56	569	1	1,337	2	869	2	305	1	526	1	11,616	26	44,866	

<sup>a</sup>Percent of State production.

<sup>b</sup>Percent of regional production.

Table 7. Species production (×1000) and percent of species production by each ownership class for the 2005–2006 planting season across the South by ownership category.

Type	Species	State		Private <sup>a</sup>		Industry <sup>b</sup>		Total
		Seedlings	%	Seedlings	%	Seedlings	%	Seedlings
Conifer								
Bareroot	Bald cypress	2,065	65	626	20	505	16	3,196
	Fraser fir	1,500	100					1,500
	Loblolly pine	116,877	14	67,954	8	631,210	77	816,041
	Longleaf pine	6,826	68	2,243	23	898	9	9,967
	Sand pine	290	14	500	24	1,257	61	2,047
	Shortleaf pine	2,051	95			104	5	2,155
	Slash pine	25,035	20	48,169	39	51,240	41	124,444
	Virginia pine	1,099	78	107	8	208	15	1,414
	White pine	3,768	100					3,768
		TOTAL	159,511	17	119,599	12	685,422	71
Container	Bald cypress	3	0	105	17	519	83	627
	Fraser fir	220	100					220
	Loblolly pine	491	5	3,852	41	5,075	54	9,418
	Longleaf pine	6,473	28	11,406	49	5,338	23	23,217
	Sand pine	13	1	1,050	99			1,063
	Shortleaf pine			170	100			170
	Slash pine	60	4	1,290	90	90	6	1,440
	Virginia pine	3	3	110	97			113
	White pine							
		TOTAL	7,263	20	17,983	50	11,022	30
Hardwood								
Bareroot	Cottonwood	99	63			58	37	157
	Dogwood	495	76	97	15	56	9	648
	Green ash	1,443	73	188	9	349	18	1,980
	Oak	13,500	58	2,202	9	7,763	33	23,465
	Pecan	391	70	74	13	97	17	562
	Sweetgum	130	22	115	19	351	59	596
	Sycamore	239	53	60	13	149	33	448
	Walnut	295	97	10	3			305
	Yellow-poplar	328	62	31	6	166	32	525
		Others	5,787	58	751	7	3,592	35
	TOTAL	22,707	59	3,528	9	12,581	32	38,816
Container	Cottonwood			1	100			1
	Dogwood			1,321	100			1,321
	Green ash			442	100			442
	Oak	1	1	1,627	99			1,628
	Pecan			2	100			2
	Sweetgum			745	100			745
	Sycamore			422	100			422
	Yellow-poplar			1	100			1
	Others	1,076	72	410	27			1,486
		TOTAL	1,077	18	4,977	82		

<sup>a</sup> Nurseries owned by companies or individuals that do not own wood-processing facilities.

<sup>b</sup> Nurseries owned by companies that have wood-processing facilities.

Table 3. Conifer seedling production (x1000) by State for the 2005–2006 planting season across the South.

State	Bald cypress		Fraser fir		Loblolly pine		Sand pine		Shortleaf pine		Slash pine		Virginia pine		White pine		Total	
	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>b</sup>
AL	85	0	136,408	90	4,634	3	300	0	170	0	9,445	6	137	0			151,179	15
AR	990	1	100,668	98					582	1							102,240	10
FL	840	2	5,400	10	9,024	17	803	1			38,130	70	65	0			54,262	5
GA	202	0	115,684	63	9,576	5	2,007	1	172	0	56,965	31	215	0			184,821	18
LA	255	1	20,645	69	700	2					8,313	28	50	0			29,963	3
MS	311	0	94,701	98	494	1					665	1					96,171	10
NC	103	0	58,866	88	4,816	7			580	1			80	0	1,000	1	67,165	7
OK	80	18	29	6	0	0			200	44			143	32			452	0
SC	582	0	151,732	95	2,828	2			15	0	4,022	3	89	0	171	0	159,439	16
TN	127	2	4,439	82	0	0			160	3			62	1	655	12	5,443	1
TX	196	0	106,030	91	1,012	1			80	0	8,344	7	263	0			115,925	12
VA	52	0	30,857	91	100	0			366	1			423	1	1,942	6	33,740	3
Region	3,823	0	825,459	82	33,184	3	3,110	0	2,325	0	125,884	13	1,527	0	3,768	0	1,000,800	

<sup>a</sup> Percent of State production.

<sup>b</sup> Percent of regional production.

Table 4. Bareroot hardwood seedling production (x1000) by State for the 2005–2006 planting season across the South.

State	Cottonwood		Dogwood		Green ash		Oak		Pecan		Sweetgum		Sycamore		Walnut		Yellow-poplar		Others		Total	
	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>a</sup>	Seedlings	% <sup>b</sup>
AL			8	1	9	1	875	75			13	1					16	1	243	21	1,164	3
AR	58	1	2	0	541	5	8,001	75	147	1	125	1			50	0	37	0	1,675	16	10,636	27
FL			50	6	50	6	400	44			100	11	50	6					251	28	901	2
GA			77	2	47	1	2,430	73			100	3	10	0			28	1	638	19	3,330	9
LA	99	2			367	9	3,229	78	185	4	4	0	72	2	16	0			193	5	4,165	11
MS					195	9	2,013	89											65	3	2,273	6
NC			70	4	32	2	976	62					21	1	40	3	48	3	376	24	1,563	4
OK			30	2	67	5	190	15	75	6			25	2	75	6			780	63	1,242	3
SC			85	2	103	2	1,780	32	19	0	107	2	148	3	2	0	128	2	3,108	57	5,480	14
TN			15	1	143	9	861	56	47	3	26	2	10	1	61	4	116	8	258	17	1,537	4
TX			27	1	160	8	1,301	66	89	5	56	3			35	2	20	1	273	14	1,961	5
VA			284	6	266	6	1,409	31			65	1	112	2	26	1	132	3	2,270	50	4,564	12
Region	157	0	648	2	1,980	5	23,465	60	562	1	596	2	448	1	305	1	525	1	10,130	26	38,816	

<sup>a</sup> Percent of State production.

<sup>b</sup> Percent of regional production.

Table 8. Conifer seedling production (×1000) for the 2005–2006 planting season across the South by ownership category. Percents are calculated for each stock type within a State.

State	Bareroot				Container				Total production										
	State	%	Private <sup>a</sup>	%	Industry <sup>b</sup>	%	State	%	Private <sup>a</sup>	%	Industry <sup>b</sup>	%	State	%	Private <sup>a</sup>	%	Industry <sup>b</sup>	%	Total
AL			35,574	24	108,326	72			4,179	3	3,100	2			39,753	26	111,426	74	151,179
AR	7,250	7			94,915	93					75	0	7,250	7			94,990	93	102,240
FL	11,200	21	39,640	73			3,422	6					14,622	27	39,640	73			54,262
GA	19,625	11	39,165	21	112,565	61			12,650	7	816	0	19,625	11	51,815	28	113,381	61	184,821
LA	29,563	99							400	1			29,563	99	400	1			29,963
MS	16,650	17			79,027	82	494	1					17,144	18			79,027	82	96,171
NC	13,839	21			45,000	67	2,326	3			6,000	9	16,165	24			51,000	76	67,165
OK	425	94					27	6					452	100					452
SC	5,661	4			152,118	95	391	0	750	0	519	0	6,052	4	750	0	152,637	96	159,439
TN	5,423	100	20	0									5,423	100	20	0			5,443
TX	16,235	14	5,200	4	93,471	81	503	0	4	0	512	0	16,738	14	5,204	4	93,983	81	115,925
VA	33,640	100					100	0					33,740	100					33,740
Region	159,511	16	119,599	12	685,422	68	7,263	1	17,983	2	11,022	1	166,774	17	137,582	14	696,444	70	1,000,800

<sup>a</sup> Nurseries owned by companies or individuals that do not own wood-processing facilities.

<sup>b</sup> Nurseries owned by companies that have wood-processing facilities.

Table 9. Hardwood seedling production (×1000) for the 2005–2006 planting season across the South by ownership category. Percents are calculated for each stock type within a State. No container seedlings were produced in industrial nurseries.

State	Bareroot				Container				Total production										
	State	%	Private <sup>a</sup>	%	Industry <sup>b</sup>	%	State	%	Private <sup>a</sup>	%	Industry <sup>b</sup>	%	State	%	Private <sup>a</sup>	%	Industry <sup>b</sup>	%	Total
AL			861	73	303	26			22	2	303	26			883	74	303	26	1,186
AR	5,950	55			4,786	45					4,786	45	5,850	55			4,786	45	10,636
FL			900	46			1,038	54					1,037	54	900	46			1,937
GA	716	18	310	8	2,304	58			675	17	716	18	716	18	985	25	2,304	58	4,005
LA	4,165	100									4,165	100	4,165	100					4,165
MS	1,841	81			432	19					1,841	81	1,841	81			432	19	2,273
NC	1,563	99					12	1			1,575	100	1,575	100					1,575
OK	1,242	100									1,242	100	1,242	100					1,242
SC	1,244	23			4,225	77	30	1					1,285	23			4,225	77	5,510
TN	1,067	69	470	31									1,067	69	470	31			1,537
TX	445	20	986	44	530	24	1	0	255	12	445	20	445	20	1,241	56	530	24	2,217
VA	4,564	100							4,021	100	4,564	100	4,564	100	4,021	47			8,577
Region	22,707	50	3,527	7	12,580	28	1,080	2	4,972	11	23,787	53	8,549	19	12,580	28	44,866	28	44,866

<sup>a</sup> Nurseries owned by companies or individuals that do not own wood-processing facilities.

<sup>b</sup> Nurseries owned by companies that have wood-processing facilities.

Table 10. Seedling production (×1000) for the 2005–2006 planting season across the South by ownership category.

State	Total seedling production							
	State	% <sup>a</sup>	Private <sup>b</sup>	% <sup>a</sup>	Industry <sup>c</sup>	% <sup>a</sup>	Total	% <sup>d</sup>
AL			40,636	27	111,729	73	152,365	15
AR	13,100	12			99,776	88	112,876	11
FL	15,659	28	40,540	72			56,199	5
GA	20,341	11	52,800	28	115,685	61	188,826	18
LA	33,728	99	400	1			34,128	3
MS	18,985	19			79,459	81	98,444	9
NC	17,740	26			51,000	74	68,740	7
OK	1,694	100					1,694	0
SC	7,337	4	750	0	156,862	95	164,949	16
TN	6,490	93	490	7			6,980	1
TX	17,183	15	6,445	5	94,513	80	118,141	11
VA	38,304	90	4,021	10			42,325	4

<sup>a</sup> Percent of State production.

<sup>b</sup> Nurseries owned by companies or individuals that do not own wood-processing facilities.

<sup>c</sup> Nurseries owned by companies that have wood-processing facilities.

<sup>d</sup> Percent of regional production.

Table 11. Percent change in seedling production from the 2004–2005 to the 2005–2006 nursery season.

State	2004–2005 production (millions)	Rank	Change	2005–2006 production (millions)	Rank
AL	175	2	– 13	152	3
AR	103	6	+ 10	113	5
FL	58	8	– 3	56	8
GA	272	1	– 30	189	1
LA	38	9	– 10	34	10
MS	112	5	– 13	98	6
NC	70	7	– 1	69	7
OK	3	12	– 33	2	12
SC	168	3	– 2	165	2
TN	13	11	– 46	7	11
TX	120	4	– 2	118	4
VA	34	10	+ 19	42	9

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

Type and source of production	Total production	Proportion	
		of source	of total
<b>Bareroot</b>			
Nursery Cooperative members	860,170	85.7	82.2
Nonmembers	143,175	14.3	13.8
Total Bareroot	1,003,346		95.9
<b>Container</b>			
Nursery Cooperative members	12,801	30.2	1.2
Nonmembers	29,519	69.8	2.4
Total Container	42,320		4.1
<b>All</b>			
Nursery Cooperative members	872,972		83.4
Nonmembers	172,695		16.6
Total	1,045,664		

## Discussion

Seedling production across the South for the 2005–2006 planting season was 1.045 billion seedlings, a decrease of 121 million (10.4 percent) from the 2004–2005 planting season (McNabb 2005). The vast majority (90 percent) of reduction in seedling production from 2004 were bareroot loblolly and slash pine. Hardwoods were 3.7 percent of regional seedling production, a decrease of 1.2 percent from the 2004 planting season. A total of 3.7 percent of all seedlings were container-grown, with longleaf pine being a majority of this production.

One of the shortcomings of this particular survey tool is that the numbers reported do not necessarily translate into acres planted within each state surveyed or by landownership category. Data are collected as production, so information on actual seedling sales or seedlings planted by State or landownership category is not available. What these numbers do provide is a pretty good estimate of seedlings (species, planting stock, etc.) that probably

were planted by nonindustrial landowners, forest industry, Real Estate Investment Trusts, or Timber Investment Management Organizations during the 2005–2006 planting season. A simple estimate of the acres planted across the region could be made by dividing the number of seedlings produced by 600 seedlings per acre for a total of 1,742,778 acres planted. While this figure is close to the acres reported in the *Tree Planters' Notes* annual report (table 13), it is about 15 percent less than what was reported for the 1997 season. With about 254 million fewer seedlings produced in 2005 than 1997, one could infer a corresponding decrease in acres planted across the region over the past 10 yr (figure 1). At 600 seedlings  $\text{ac}^{-1}$ , it could be inferred that approximately 424,000 fewer acres were replanted across the region in 2006 than were planted in 1997.

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Table 13. Seedling production ( $\times 1000$ ) and acres planted as reported to the Forest Service (1996–1998) and Nursery Cooperative Seedling Production Survey (2004–2006) for the Southern United States.

State	Season							
	1996–1997 <sup>a</sup>			1997–1998 <sup>a</sup>			2004–2005	2005–2006
	Production ( $\times 1000$ )	Acres planted	Seedlings $\text{ac}^{-1}$	Production ( $\times 1000$ )	Acres planted	Seedlings $\text{ac}^{-1}$	Production ( $\times 1000$ )	Production ( $\times 1000$ )
AL	236,625	437,512	541	127,500	309,770	412	174,726	152,365
AR	120,000	109,599	1,095 <sup>b</sup>	125,000	113,738	1,100 <sup>b</sup>	102,991	112,876
FL	160,000	192,840	830 <sup>b</sup>	154,821	188,897	820 <sup>b</sup>	58,471	56,199
GA	251,362	396,726	634 <sup>b</sup>	357,854	416,280	860 <sup>b</sup>	271,519	188,826
LA	67,078	144,083	466	66,282	155,508	426	39,730	34,128
MS	6,220	281,829	22	101,498	371,432	273	111,981	98,144
NC	104,000	113,978	912 <sup>b</sup>	85,252	105,827	806 <sup>b</sup>	70,166	68,740
OK	41,524	13,870	2,994 <sup>b</sup>	7,686	21,142	364	2,513	1,694
SC	99,438	165,761	600	97,962	99,202	988 <sup>b</sup>	168,120	164,949
TN	8,079	7,205	1,121 <sup>b</sup>	13,000	11,420	1,138 <sup>b</sup>	13,091	6,980
TX	125,900	107,813	1,168 <sup>b</sup>	106,000	162,617	652 <sup>b</sup>	119,772	118,141
VA	48,420	90,961	– 532	57,137	101,374	– 564	33,588	42,325
Total	1,268,646	2,062,177	$x = 615^c$	1,299,992	2,057,207	$x = 632^c$	1,166,668	1,045,664

<sup>a</sup> Data from Moulton (1999) and Moulton and Hernandez (1999).

<sup>b</sup> States with a large number of seedlings  $\text{ac}^{-1}$  would appear to be net seedling exporters, based on the average seedling density of 500 seedlings planted  $\text{ac}^{-1}$ . States with a small number of seedlings  $\text{ac}^{-1}$  would appear to be net seedling importers for reforestation needs.

<sup>c</sup> Average number of seedlings planted  $\text{ac}^{-1}$  across the region = annual production/ac planted.

<sup>d</sup> Acres planted across the region = annual production/600 seedlings  $\text{ac}^{-1}$ . We believe that 600 seedlings  $\text{ac}^{-1}$  is high, but we used this figure to be consistent with Forest Service data for 1997 and 1998.

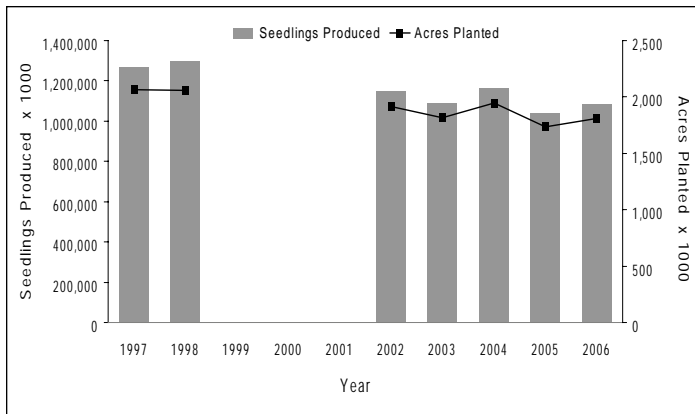


Figure 1. Total hardwood and conifer seedling production and acres planted for the U.S. southern region 1997–2006. Data for 1997 and 1998 are from Moulton (1999) and Moulton and Hernandez (1999). Data for 2002–2006 are from Auburn University Southern Forest Nursery Management Cooperative’s regional survey (McNabb and VanderSchaaf 2003; McNabb and Santos 2004; McNabb 2005, 2006). Seedling production information was not collected for 1999–2001. Acres planted for 2002–2006 = (annual production/600 seedlings ac-1). We believe that 600 seedlings ac-1 is high, but this figure is consistent with Forest Service data for 1997 and 1998.

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