

Criterion 6, Indicator 45—Average Wage Rates and Injury Rates in Major Employment Categories Within the Forest Sector

Contact: Ken Skog
USDA Forest Service
Forest Products Laboratory
One Gifford Pinchot Dr.
Madison, WI 53711
608-231-9360
kskog@fs.fed.us

The purpose of this report is to provide information on the rationale and data provided for Indicator 45 for the U.S. *National Report on Sustainable Forests—2003*. Information on the rationale for the indicator and recommended data to be developed are taken from the report of the Technical Advisory Committee of the Montreal Process¹ and from reports from the technical workshops of the U.S. Roundtable on Sustainable Forests Criteria and Indicators. Data that have been developed are displayed and sources are provided. The data are summarized in the *National Report on Sustainable Forests—2003*.²

A. Rationale for use of the indicator

1. Rationale from the Technical Advisor Committee (TAC)

Overall rationale provided for Indicators 44 (employment), 45 (wage and injury rates), and 46 (community viability and adaptability)—Forest-related jobs and community stability, or livelihood, are very important social values of forests.

Forest management is primarily a rural activity that often occurs in areas where there are few alternative economic development opportunities. In some cases, rural communities, by becoming heavily reliant on the harvesting or processing of forest products, also become vulnerable to business cycles and structural changes in markets. Such communities may lack the capacity to adapt or respond to changes in external circumstances.

In other cases, the expansion of plantations, or use of alternative forest products, can make a positive contribution to rural development. In some cases, the need of some parts of the forest sector to remain competitive in global markets has resulted in the adoption of new technologies that, while maintaining production levels, have reduced local levels of employment.

The needs of forest sector employees, residents of rural communities, subsistence users, and forest dwelling communities that rely heavily on the forest are important aspects of public decision making and policy.

¹ See http://www.mpci.org/tac/mexico/tn1-6_e.html

² See <http://www.fs.fed.us/research/sustain/>

There is also significant employment in urban areas in the processing of forest products, e.g., furniture making. Additional employment is associated with the recycling of wood products, urban forestry, park management, arboriculture, recreational enterprises, etc.

Rational for Indicator 45—This indicator measures forest sector wage rates and injury rates as a measure of workforce health and welfare.

Approaches to measurement—Data to measure this indicator include wage and injury rates by different components of the forest sector, including non-wood industries and services. Government, union, industry, or research health and safety sources may be useful.

2. Interpretation of the indicator as proposed by the TAC

Comparison of wages in forest sector with wages in similar occupations in the region gives an indication of the economic viability of the sector and potential for income security in dependent communities. Decreasing injury rates in the forest sector may reflect improved occupational health and safety and employment quality from which community social benefits might be derived.

3. U.S. Clarification from the Roundtable Workshops

Suggested interpretation of the indicator and definition of terms:

Definition of the forest sector is critical. The definition found in the technical assessment notes for Indicator 44 is adequate: “wood and non-wood forest products industries, research, management, protection, education, recreation and tourism.” This definition compels broadening the categories of assessment beyond traditional timber products and related employment to obtain accurate evaluations of wage and injury rates of major employment categories associated with forests.

B. Data provided to quantify the indicator

The Roundtable guidance requests data on wage and injury rates for the same categories of employment as used for Indicator 44. These include

- Wood products industries
- Non-wood forest products industries
- Forest research
- Management
- Protection
- Education
- Recreation and tourism

To meet the intent of the indicator suggested by the TAC data we include wages, salaries, and injury rates.

Wages and salaries

Category 1 – Wood products industries

- Wage and salary accruals per full-time equivalent employee for all domestic employment, for all manufacturing, and for SIC industries 24 and 26, 1929–2000 (Table 45–1)
- Production worker wages per hour for NAICS industries 113, 321, and wood part of 322 by RPA region, 1997 (Table 44–2)

Category 2 – Non-wood forest products industries

- See discussion of wages and injuries in the non-wood forest products sectors (Box 1)

Category 3 – Forest sector research

Category 4 – Management

- Average and range for salaries of employees in State forestry agencies by RPA Region, 1996 (Table 45–4)
- USDA Forest Service full-time permanent employees by annual base salary, 1992–2001 (Table 45–3)

Category 5 – Protection

- State agency protection salaries included in Table 45–7

Category 6 – Education

Category 7 – Recreation and tourism

Injury rates

Category 1 – Wood products industries

- Rate of injury and illness cases per 100 full-time workers for lumber and wood products, paper and allied products, and all manufacturing industries, 1976–2000 (Table 45–5)

Category 2 – Non-wood forest products industries

- See discussion of wages and injuries in the nonwood forest products sectors (Box 1)

Category 3 – Forest sector research

Category 4 – Management

- Injury rates for State forest agency workers for four states in the South per 100 workers, 1995–2001 (Table 45–6)

Category 5 – Protection

- See category 4

Category 6 – Education

Category 7 – Recreation and tourism

C. Interpretation of data relative to rationale from TAC

The data presented meet the intent of the TAC rationale to indicate amount and trend of wages in injury rates for sectors associated with forestry, although data for some sectors are missing.

Annual salaries and wages in wood product industries are currently about \$30,000 and \$46,500 for wood products and paper products industries, respectively. Wages and salaries in deflated dollars for paper products industries has increased fairly steadily since 1930 and has remained above the average for all manufacturing industries and for all domestic employment. Wages and salaries for wood products in deflated dollars increased from 1930 to about 1980, decreased slightly in the '80s, but have increased since about 1990. The average for wood products has remained below the averages for manufacturing and all domestic employment (Table 45–1).

Production worker wages, in 1997, were highest for the paper products industries (\$16.23/hour), followed by logging (\$13.86/hour) and then wood products and furniture industries (\$11.14 and \$10.37/hour, respectively). The highest wages for paper products are in the Pacific Coast and South, followed by the North and Rocky Mountains. The highest wood products wages are in the Pacific Coast, followed by similar averages for the Rocky Mountains and North, then followed by the South (Table 45–2).

Average salaries in State forestry agencies, which includes jobs in forest management and protection, are provided by job category for 1996. The average salary for State Foresters ranged from \$83,000 on the Pacific Coast to \$70,500 in the South, \$67,000 in the North, and \$66,000 in the Rocky Mountains. The average salary for District Foresters ranged from \$50,000 on the Pacific Coast to \$36,000 in the Rocky Mountains. The average Forestry Technician salary ranged from \$25,000 in the North to \$18,500 in the Rocky Mountains (Table 45–3).

The range for the median salary of USDA Forest Service full-time employees (in 1996 dollars) increased from \$11,000–\$22,000 in 1992 to \$37,000–\$46,000 in 2001. Salaries cover employees in the National Forest System, Forest Service Research, and State and Private forestry. The marked increase in the median wage was due in part to a substantial decrease in employees in the two lowest pay ranges during the 1990s (see Table 45–4).

Wages for collecting non-timber forest products may vary widely. For example, mushroom picking may pay as little as \$30/day to as much as \$15/hour. Some studies found the higher wages are possible for experienced pickers but the majority of workers earn low wages. Many workers in the informal economy receive fewer benefits or lower wages than if they worked in the formal economy (Box 1).

The information we provide on injury rates for forest products industries includes the rate of occupational illness. It is suggested that occupational illnesses are a hazard that should be included for this indicator. The illness and injury rate for wood and furniture products industries, while higher than the average for all manufacturing, have fallen in line with the rate for all manufacturing since 1976. The illness and injury rate for paper industries has been below the national average since 1984. In 2000, the annual occurrence of illness or injury per 100 workers was 12.1 for wood products, 6.8 for paper products, 9.8 for wood furniture, and 9 for all manufacturing (Table 45–5).

Information on injury rates for workers in State forestry agencies (forest management and protection) is provided for four states in the U.S. South based on a survey of State forestry

agencies. The average annual injury rate for workers in these states have ranged from 8 to 19 occurrences per 100 workers in recent years (Table 45–6).

D. Limitations of data

Wages and injury rates in solidwood and paper industries—Employment in wood and paper products industries includes all employment in firms where wood and paper products are the primary products. However, other products and services may be produced by these firms as well.

Wages and injury rates in non-wood forest products industries—Studies determining income for those collecting or harvesting non-wood forest products are intermittent and for regional or local areas. Studies assessing injury rates have not been found. Safety might be suggested by looking at safety for similar types of work in the agricultural sector.

Data have not been found for wages and injury rates for employment in forest-based recreation and tourism or for education. The wage rates for research and education could be developed with limited additional research. More detailed research may be needed to identify national or regional wages for forest-based recreation and tourism.

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USDC Bureau of Economic Analysis. 2002a. National income and product accounts tables. Table 6.6A. Wage and salary accruals per full-time equivalent employee by industry, 1929–1948. (<http://www.bea.doc.gov/bea/dn/nipaweb/TableViewFixed.asp?SelectedTable=95&FirstYear=1943&LastYear=1948&Freq=Year>)

USDC Bureau of Economic Analysis. 2002b. National income and product accounts tables. Table 6.6B. Wage and salary accruals per full-time equivalent employee by industry, 1948–1987. (<http://www.bea.doc.gov/bea/dn/nipaweb/TableViewFixed.asp?SelectedTable=96&FirstYear=1982&LastYear=1987&Freq=Year>)

USDC Bureau of Economic Analysis. 2002c. National income and product accounts tables. Table 6.6C. Wage and salary accruals per full-time equivalent employee by industry, 1987–2000. (<http://www.bea.doc.gov/bea/dn/nipaweb/TableViewFixed.asp?SelectedTable=97&FirstYear=1996&LastYear=2001&Freq=Year>)

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Box 1 - Discussion of wages and injuries in the non-wood forest products sectors

Businesses in the nontimber forest products (NTFP) industry are generally small, employing few people. There are exceptions, but most businesses are what are referred to as very small enterprises, employing less than ten people. Very small enterprises are relevant to informality for two important reasons. First, because of their low visibility, ease of displacement, and other small business/low capital investment characteristics, they provide the most appropriate setting for casual hiring, non-reported income, and other informal practices. The second point is that it is easier to operate a very small enterprise as a totally underground business. Fully informal small enterprises escape government recordkeeping. It is important to note that not all very small enterprises engage in informal practices (Alexander and others 2002).

A few studies have attempted to estimate gross wages for wild edible mushroom harvesters. Acker (1986) said that an average wage for a mushroom picker in the mid-80s was \$830 seasonally, with a few people earning a maximum of \$4,000. In an assessment of American matsutake in the Nass Valley in British Columbia, Meyer Resources (1995) found that matsutake pickers earned an estimated \$4,500 per season in the early 1990s. Love and others (1998) estimated wages for commercial mushroom harvesters in the Olympic Peninsula in Washington at about \$30 per day. Obst and Brown (2000) reported an average wage of US \$15 per hour for morel harvesters in the Northwest Territories of Canada. Other authors have found that while such wages may be standard for experienced pickers, the majority of mushroom harvesters earn far less, and many, particularly those with little or no experience, lose money. Pickers are paid immediately in cash by mushroom buyers, who often handle tens of thousands of dollars each day in high-value, high-volume areas. Mushroom buying may represent the largest legal cash-based commerce in our society.

Alexander and others (in press) attempted to explain how harvester wages for mushroom picking could be determined. It is known locally, in many cases, what harvesters are paid for products they harvest from the forest. However, assessing a wage from that data can be problematic. Harvester costs are generally unknown, and the harvesters' personal minimum wage may vary from one market to another, may vary from one season to another, and will vary as economic conditions change.

There is also little published information about wages paid to harvesters of Christmas greens and floral products. Heckman (1951) reported daily wages of \$18 to \$40 for people who harvested floral greens in the Pacific Northwest in 1950, with a weekly maximum of \$400. It has been estimated that about 80% of boughs are used during the Christmas holidays. The remaining 20% are used year-round by the floral market.

Workers in the informal economy tend to have very specific characteristics that can be referred to as downgraded labor. Many receive fewer benefits or lower wages, or experience worse working conditions than they would in the formal economy. Many work in the informal economy because they must.

Injury rates for the non-timber forest products sectors have not been assessed. Since many of the primary production level workers operate in the informal economy, no data on injury rates at that level would be available without surveys. Gathering products in the forest can be dangerous, and there are reports in the media of people becoming lost or injured every year.

Table 45-1 Wage and salary accruals per full-time equivalent employee for all domestic employment, for all manufacturing, and for SIC industries 24 and 26, 1929-2000

Year	Actual dollars					1996 dollars					Personal consumption expenditures implicit price deflator 1996 = 100
	All domestic employment	All manufacturing	Lumber and wood products--SIC 24	Paper and allied products--SIC 26	Average SIC 24 & 26	All domestic employment	All manufacturing	Lumber and wood products--SIC 24	Paper and allied products--SIC 26	Average SIC 24 & 26	
1929	1,430	1,543	1,172	1,514	1343	11551	12464	9467	12229	10848	12.38
1930	1,392	1,488	1,156	1,487	1322	11747	12557	9755	12549	11152	11.85
1931	1,299	1,369	1,010	1,404	1207	12289	12952	9555	13283	11419	10.57
1932	1,143	1,150	787	1,208	998	12264	12339	8444	12961	10703	9.32
1933	1,069	1,086	737	1,143	940	11891	12080	8198	12714	10456	8.99
1934	1,110	1,153	791	1,186	989	11796	12253	8406	12604	10505	9.41
1935	1,157	1,216	833	1,235	1034	12015	12627	8650	12825	10737	9.63
1936	1,203	1,287	911	1,313	1112	12377	13241	9372	13508	11440	9.72
1937	1,277	1,376	963	1,403	1183	12681	13664	9563	13932	11748	10.07
1938	1,249	1,296	940	1,359	1150	12693	13171	9553	13811	11682	9.84
1939	1,282	1,363	956	1,414	1185	13149	13979	9805	14503	12154	9.75
1940	1,317	1,432	934	1,458	1196	13398	14568	9502	14832	12167	9.83
1941	1,460	1,653	1,026	1,646	1336	13998	15849	9837	15781	12809	10.43
1942	1,729	2,023	1,205	1,850	1528	14753	17261	10282	15785	13033	11.72
1943	1,973	2,349	1,446	2,076	1761	15406	18352	11297	16219	13758	12.8
1944	2,126	2,517	1,564	2,254	1909	15698	18603	11559	16659	14109	13.53
1945	2,208	2,517	1,618	2,365	1992	15679	17889	11500	16809	14154	14.07
1946	2,383	2,517	1,813	2,535	2174	15800	16702	12031	16821	14426	15.07
1947	2,616	2,793	2,046	2,901	2474	15728	16805	12310	17455	14883	16.62
1948	2,822	3,037	2,256	3,194	2725	16056	17285	12840	18179	15509	17.57
1949	2,881	3,107	2,305	3,248	2777	16502	17815	13217	18624	15920	17.44
1950	3,034	3,330	2,517	3,498	3008	17169	18856	14253	19807	17030	17.66
1951	3,266	3,652	2,723	3,815	3269	17305	19374	14446	20239	17342	18.85
1952	3,458	3,894	2,928	4,032	3480	17962	20250	15226	20967	18097	19.23
1953	3,643	4,133	3,046	4,252	3649	18656	21195	15621	21805	18713	19.5
1954	3,737	4,224	3,163	4,391	3777	18948	21463	16072	22312	19192	19.68
1955	3,929	4,481	3,352	4,654	4003	19838	22677	16964	23553	20258	19.76
1956	4,141	4,739	3,522	4,895	4209	20496	23507	17470	24281	20875	20.16
1957	4,306	4,928	3,583	5,067	4325	20688	23727	17251	24396	20823	20.77
1958	4,475	5,148	3,759	5,292	4526	20977	24180	17656	24857	21256	21.29
1959	4,675	5,413	3,973	5,559	4766	21567	25025	18368	25700	22034	21.63
1960	4,822	5,545	3,985	5,708	4847	21873	25205	18114	25945	22030	22
1961	4,966	5,701	4,098	5,952	5025	22303	25646	18435	26775	22605	22.23
1962	5,158	5,916	4,281	6,151	5216	22904	26305	19035	27350	23193	22.49
1963	5,344	6,111	4,470	6,327	5399	23468	26862	19648	27811	23730	22.75
1964	5,610	6,417	4,747	6,636	5692	24296	27815	20577	28765	24671	23.07
1965	5,807	6,564	4,877	6,768	5823	24797	28039	20833	28911	24872	23.41

Table 45–1 Wage and salary accruals per full-time equivalent employee for all domestic employment, for all manufacturing, and for SIC industries 24 and 26, 1929–2000—con.

Year	Actual dollars					1996 dollars					Personal consumption expenditures implicit price deflator 1996 = 100
	All domestic employment	All manufacturing	Lumber and wood products–SIC 24	Paper and allied products–SIC 26	Average SIC 24 & 26	All domestic employment	All manufacturing	Lumber and wood products–SIC 24	Paper and allied products–SIC 26	Average SIC 24 & 26	
1966	6,058	6,801	5,073	7,037	6055	25223	28326	21129	29309	25219	24.01
1967	6,309	7,044	5,335	7,256	6296	25617	28611	21669	29472	25571	24.62
1968	6,755	7,534	5,877	7,734	6806	26400	29453	22975	30235	26605	25.58
1969	7,226	7,970	6,290	8,182	7236	27016	29806	23523	30598	27061	26.74
1970	7,743	8,378	6,662	8,637	7650	27643	29921	23793	30846	27320	28
1971	8,250	8,883	7,153	9,226	8190	28243	30421	24497	31596	28046	29.2
1972	8,788	9,450	7,606	9,947	8777	29073	31271	25169	32915	29042	30.22
1973	9,320	10,027	8,216	10,581	9399	29244	31472	25788	33211	29499	31.86
1974	10,009	10,843	8,850	11,461	10156	28486	30865	25192	32625	28908	35.13
1975	10,808	11,899	9,744	12,613	11179	28427	31305	25635	33183	29409	38.01
1976	11,576	12,835	10,554	13,847	12201	28875	32023	26332	34548	30440	40.08
1977	12,360	13,859	11,472	14,996	13234	28921	32434	26848	35095	30971	42.73
1978	13,263	14,936	12,436	16,259	14348	28965	32626	27165	35516	31340	45.78
1979	14,381	16,263	13,476	17,776	15626	28854	32637	27044	35673	31359	49.83
1980	15,790	17,978	14,701	19,678	17190	28594	32563	26627	35642	31135	55.21
1981	17,243	19,628	15,781	21,429	18605	28683	32670	26267	35667	30967	60.08
1982	18,482	21,117	16,517	23,148	19833	29096	33266	26019	36465	31242	63.48
1983	19,410	22,307	17,330	24,710	21020	29304	33701	26182	37332	31757	66.19
1984	20,337	23,543	17,756	26,438	22097	29612	34304	25872	38523	32197	68.63
1985	21,293	24,945	18,473	27,746	23110	29975	35139	26022	39084	32553	70.99
1986	22,160	26,003	19,225	29,202	24214	30477	35758	26437	40157	33297	72.72
1987	23,123	26,732	19,764	30,067	24916	30629	35411	26181	39829	33005	75.49
1988	24,273	27,984	20,721	31,382	26052	30936	35680	26420	40013	33216	78.43
1989	25,029	28,855	21,109	32,282	26696	30566	35249	25787	39436	32611	81.86
1990	26,257	30,054	21,712	33,514	27613	30666	35098	25356	39138	32247	85.63
1991	27,325	31,240	22,176	34,456	28316	30739	35137	24942	38754	31848	88.91
1992	28,654	32,815	23,339	36,173	29756	31284	35816	25474	39482	32478	91.62
1993	29,417	33,665	23,872	36,968	30420	31275	35886	25447	39407	32427	93.81
1994	30,139	34,704	24,391	38,260	31326	31404	36263	25487	39979	32733	95.7
1995	30,996	35,779	25,110	39,458	32284	31574	36546	25649	40304	32977	97.9
1996	32,040	37,158	26,148	40,718	33433	31963	37158	26148	40718	33433	100
1997	33,429	38,941	27,382	42,129	34756	32708	38200	26861	41327	34094	100.94
1998	35,109	40,831	28,258	43,197	35728	33993	39630	27427	41927	34677	103.03
1999	36,677	42,832	29,009	44,900	36955	34938	40901	27701	42876	35289	104.72
2000	38,759	45,704	30,018	46,519	38269	35911	42507	27919	43265	35592	107.52

Sources: SIC 24, 26 (USD Bureau of Economic analysis 2002a, b, c), price deflator (USDC BEA 2002d). Note: Definitions of SIC groups changed somewhat in 1987 and so data before 1987 not strictly comparable with data for 1987 and after.

Table 45-2 Production worker wages per hour for NAICS industries 113, 321, and wood part of 322 by RPA region, 1997

Industry/ NAICS code	North	South	Rocky	Pacific Coast	Not disclosed	Total
			Mountains		by state	
Logging/ 113	12.70	12.78	14.71	16.02	12.34	13.86
Wood products/ 321	11.23	10.42	11.49	12.50	11.73	11.14
Paper products/ 322	15.76	16.22	14.43	17.52	20.28	16.23
Wood furniture/ parts of 377	11.28	9.61	10.18	10.06	11.46	10.37

Note: Codes used under NAICS 337 are 337111, 337122, 337211, and 337212.

Source: (USDC 1999)

Table 45-3 Average and range for salaries of employees in state forestry agencies by RPA Region, 1996

	North			South			Rocky Mountain			Pacific Coast		
	Average	High	Low	Average	High	Low	Average	High	Low	Average	High	Low
State Forester	66,721	99,000	43,100	70,504	105,000	45,900	65,718	105,000	43,900	82,737	90,480	76,332
Regional Forester	47,941	62,000	34,000	49,236	72,000	33,000	44,547	57,000	32,000	62,401	56,904	70,300
District Forester	41,211	54,000	29,668	39,233	58,300	33,500	35,970	47,000	28,000	50,037	54,500	44,000
Service Forester	34,922	48,000	25,689	30,511	36,700	23,000	28,711	41,000	22,000	39,365	46,500	35,500
Entry Level Forester	26,587	43,000	19,764	22,485	26,000	17,000	24,345	37,000	20,600	31,495	32,784	30,000
Forestry Technician	24,565	35,000	18,000	20,555	26,209	18,000	18,530	35,000	17,000	21,727	27,000	14,600

Source: (National Association of State Foresters, 2002)

Table 45-4 USDA Forest Service full time permanent employees by annual base salary, 1992-2001

Year	\$10,000 to	20,000 to	30,000 to	40,000 to	50,000 to	60,000 to	70,000 to	80,000 to	90,000 to	90,000 +	Total	Range for median base salary	
	20,000	30,000	40,000	50,000	60,000	70,000	80,000	90,000	1000	1996 dollars			
1992	4451	12996	8928	4464	1975	809	271	59	65	34018	11	22	
1993	2983	12706	9129	5469	2316	956	346	120	68	34093	32	43	
1994	1709	10947	9385	5104	2302	1029	375	152	69	31072	31	42	
1995	948	9611	9345	5497	2514	1128	374	154	97	29668	31	41	
1996	759	8661	9385	5966	2876	1332	451	192	115	29737	30	40	
1997	324	7859	9003	6392	2897	1619	557	247	161	29059	29	39	
1998	188	6734	8836	5784	3224	1875	755	278	212	27886	29	39	
1999	126	5718	8439	6107	3525	2034	962	418	266	27595	29	38	
2000	42	4572	7491	6496	4274	2427	1297	460	452	27511	37	47	
2001	119	5118	7473	6709	4560	2685	1308	769	570	29311	37	46	

Source: (USDA FS HRM 2002), Salary deflator from table 45-1.

Table 45-5 Rate of injury and illness cases per 100 full-time workers for lumber and wood products, paper and allied products and all manufacturing industries, 1976 - 2000

Year	Lumber and wood products (SIC 24)	Paper and allied products (SIC 26)	Wood furniture (parts of SIC 25)	All manufacturing industries
1976	22.1	13.7	17.0	13.2
1977	22.3	13.6	16.6	13.1
1978	22.6	13.5	17.7	13.2
1979	20.7	13.5	17.6	13.3
1980	18.6	12.7	16.0	12.2
1981	17.6	11.6	14.9	11.5
1982	16.9	10.6	14.1	10.2
1983	18.3	10	13.5	10
1984	19.6	10.4	14.7	10.6
1985	18.5	10.2	13.8	10.4
1986	18.9	10.5	15.6	10.6
1987	18.9	12.8	15.4	11.9
1988	19.5	13.1	15.8	13.1
1989	18.4	12.7	14.9	13.1
1990	18.1	12.1	16.1	13.2
1991	16.8	11.2	15.4	12.7
1992	16.3	11	14.5	12.5
1993	15.9	9.9	12.6	12.1
1994	15.7	9.6	15.1	12.2
1995	14.9	8.5	12.7	11.6
1996	14.2	7.9	11.9	10.6
1997	13.5	7.3	12.7	10.3
1998	13.2	7.1	11.0	9.7
1999	13	7	10.6	9.2
2000	12.1	6.5	9.8	9

Source (USDAL, BLS 2002)

Wood furniture figure is simple average of rates for SIC 2511, 2517, 2521, 2541.

Definition: Recordable injuries and illnesses are 1) occupational deaths, 2) nonfatal occupational illnesses; or 3) nonfatal occupational injuries involving one or more of the following: loss of consciousness, restriction of work or motion, transfer to another job, or medical treatment other than first aid.

Table 45-6 Injury rates for state forest agency workers for four states in the South per 100 workers, 1995-2001

Year	State A	State B	State C	State D
1995	15	17	4	5
1997		8		
1998		6		
1999	21		13	11
2000	22	13	10	9
2001		9		

Source: (USDA FS 2002 , survey of state forestry agencies)