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The U.S. Tobacco Industry

Verner N. Grise
Karen F. Griffin

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Abstract

With 18 percent of world tobacco exports and 12 percent of production, the United States is the leading tobacco exporter and the second largest producer behind China. While tobacco is America's sixth largest cash crop, U.S. tobacco production has declined because of lower tobacco use per cigarette, more imported tobacco in U.S. cigarettes, smaller exports, and reduced U.S. cigarette production. Most tobacco is used in cigarettes, but other products include snuff, cigars, and chewing and smoking tobacco. Japan and West Germany are the major importers of U.S. tobacco, and Turkey and Brazil are the major exporters of tobacco to the United States. This report examines the U.S. tobacco industry—tobacco use, production, and trade—and how Government programs affect tobacco farmers. The cultural practices, harvesting and curing systems, market preparation, and production costs for tobacco are also reviewed.

Keywords: Tobacco industry, tobacco production, disappearance, exports, imports, Government programs, production costs, price supports.

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Summary

With 18 percent of world tobacco exports and 12 percent of production, the United States is the leading tobacco exporter and the second largest producer (behind China). Tobacco is the Nation's sixth largest cash crop. Although 1985 tobacco production amounted to over $2.6 billion, U.S. production has fallen, while China's has risen. U.S. tobacco production has declined because of lower tobacco use per cigarette, declining cigarette production, and smaller exports. Most tobacco is used in cigarettes, but other products include snuff, cigars, and chewing and smoking tobacco. U.S. tobacco's largest foreign markets include Japan, West Germany, Italy, Spain, and the United Kingdom. Turkey and Brazil are the major exporters of tobacco to the United States.

This report examines the U.S. tobacco industry—tobacco use, production, and trade—and how Government programs affect tobacco farmers. The cultural practices, harvesting and curing systems, market preparation, and production costs for tobacco are also reviewed.

The United States grows six major classes of tobacco: flue-cured, air-cured, fire-cured, cigar filler, cigar binder, and cigar wrapper. Total annual disappearance, including tobacco going to domestic consumption, exports, and waste, remained relatively stable from 1950 to 1978 at around 2 billion pounds. Consumption has since declined steadily to around 1.6 billion pounds because of reduced exports, increased imports, and lower cigarette production. Technological advances, such as leaf expansion, use of the entire leaf, and less leaf use per cigarette, helped cut production.

Snuff was the only tobacco product whose consumption rose consistently in the early 1980's. But consumption has been falling recently. Cigarette consumption per person (18 years and older) declined 25 percent since its peak of 4,345 in 1963. Per capita consumption of cigar, pipe, and roll-your-own tobacco fell substantially over the last 15 years.

U.S. consumers spent about $34 billion on tobacco products in 1986, 275 percent more than 15 years earlier. Taxes on tobacco products have also gone up but at a slower rate than total spending. Taxes represent less than 30 percent of total expenditures on tobacco, compared with over 40 percent 15 years ago.

U.S. tobacco grows on about 600,000 acres in small plots (averaging 5.2 acres) in North Carolina, Kentucky, Virginia, Tennessee, Georgia, and South Carolina. North Carolina leads all States, with 34 percent of production.

Area planted to tobacco has declined steadily since its peak of 2.12 million acres in 1930, reaching its lowest level in 1986 since 1874. However, average yields per acre rose substantially from the 1930's to the mid-1960's to 1,900 pounds. Average yields have not increased much since the mid-1960's because Government programs regulating production changed in 1965 from constraints on acres to constraints on acres and pounds for flue-cured—the major tobacco.

Labor used to produce flue-cured tobacco has declined markedly since the mid-1960's. A changeover by growers to loose-leaf sales, bulk-curing barns and mechanical harvesters, and larger equipment has lowered labor requirements by about two-thirds.

Growers must adhere to strictly controlled Government poundage quotas and acreage allotments in exchange for price supports. In 1982, growers were required to contribute to a fund so the Government could operate the tobacco loan program at no net cost (except administrative charges). Legislation held down price supports in 1982–84. Further changes reduced the effective flue-cured and burley support prices in 1985. But 1986 legislation retained lower or reduced price support levels, altered the method of determining quotas so that they would better reflect supply and demand, and gradually moves the large loan stocks into trade.

The U.S. Tobacco Industry

Verner N. Grise
Karen Griffin*

Introduction

With a 1985 farm value of $2.6 billion, tobacco is the Nation's sixth largest cash crop. The United States is the world's leading tobacco exporter and the second largest tobacco producer, behind China. This report presents the most recent data on the U.S. tobacco industry—tobacco uses, production, and trade—and describes how Government programs, including legislation since 1982, affect tobacco farmers.

Tobacco is used for cigarettes, cigars, chewing, snuff, pipes, and roll-your-own smoking. Different types and kinds of tobacco are used in these tobacco products. The United States grows six major classes of tobacco: flue-cured, air-cured, fire-cured, cigar filler, cigar binder, and cigar wrapper (fig. 1). Most U.S. tobacco is used for cigarettes, as is most tobacco produced in the world. New technologies can expand tobacco leaf size and have allowed the entire leaf to be used in cigarette production. Although consumption of cigarettes rose about 70 percent between 1950 and 1981, use of leaf remained relatively constant. Leaf use declined over the last 5 years as consumption dropped. The new technologies and greater use of imported tobacco have held down domestic use and are now causing a decline in use of U.S. tobacco.

Brief History of Tobacco

Tobacco is a member of a large family of plants, chiefly tropical in origin, known as the Solanaceae, or potato, family. Tobacco belongs to the genus *Nicotiana*. There are about 50 species in the genus (*3*).[1]

Although much has been written about tobacco, authentic information on its early history is limited. However, there were numerous reports of tobacco cultivation and use in the late 1400's and early 1500's. West Indian natives and North and South American Indians grew and used tobacco in various forms.

The tobacco the early American settlers found growing in the Indian villages along the James and Rappahannock rivers and other parts of Tidewater Virginia was a strong type belonging to *Nicotiana rustica l.,* believed to have originated in Mexico or Central America. English merchants preferred Spanish Leaf, a more mild and aromatic variety of *Nicotiana tobacco l.,* which had been used in Europe and Great Britain 20 years before the colonies were founded (*3*). John Rolfe began the commercial cultivation of tobacco at Jamestown, Virginia, in 1612, and its culture became common in the colony by 1616. Tobacco soon became a valuable export commodity because of the large quantity that could be produced per acre and its strong market in Great Britain.

Tobacco production spread to Maryland, New York, Pennsylvania, and Connecticut in the 1600's. How-

USDA photo by Steve Wade

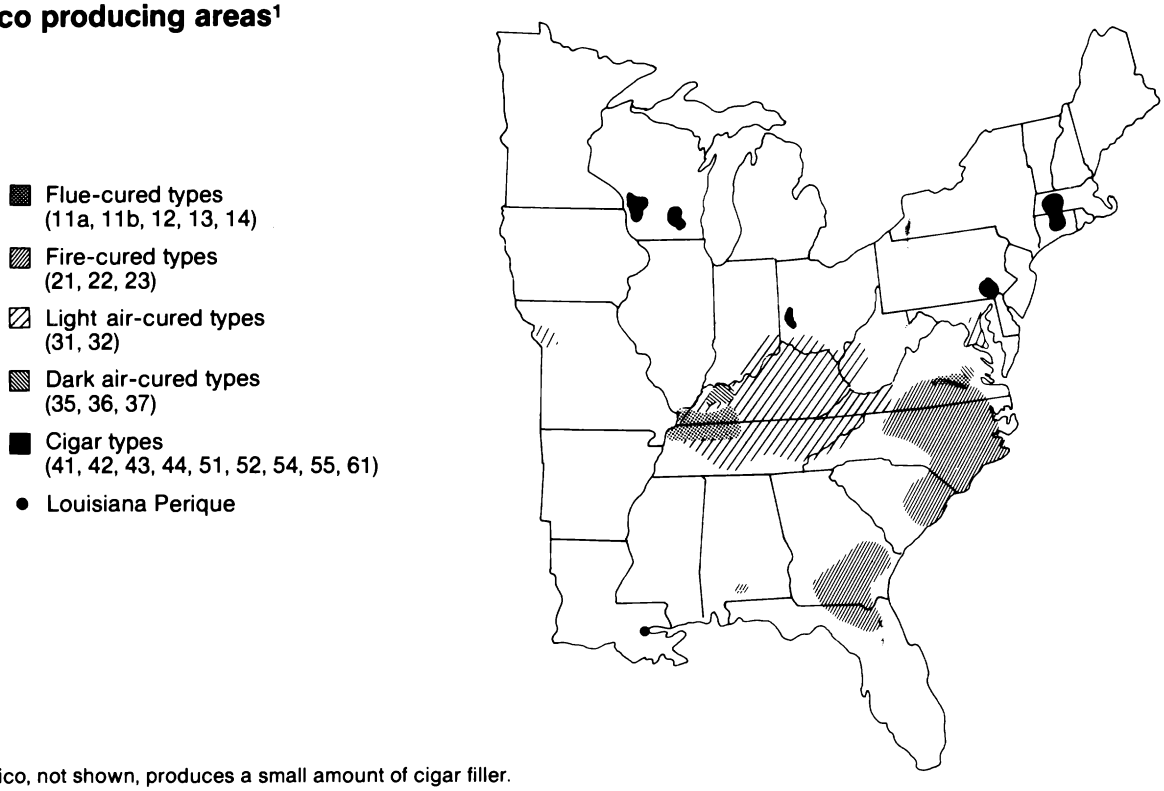
If permitted to remain on the tobacco plant, the flowers develop into seed pods. One ounce of seed can transplant several acres of tobacco.

* The authors are agricultural economists.

[1] Italicized numbers in parentheses refer to literature cited in the References section.

Figure 1

Tobacco producing areas[1]



[1]Puerto Rico, not shown, produces a small amount of cigar filler.

ever, Virginia and Maryland produced most of the tobacco grown in the colonies through the end of the 1700's. A number of States began producing tobacco after the Revolutionary War. Tobacco production reached 219 million pounds in 1839. Production doubled by 1859 and reached 900 million pounds by 1898. As domestic cigarette consumption rose rapidly from the 1920's through the early 1960's, tobacco production expanded dramatically to a record 2.34 billion pounds in 1963. Since 1963, production usually varied from 1.75 to 2.2 billion pounds. However, production has been slowing since 1975.

Twenty-one States now grow tobacco. Since the late 1930's, when most tobacco production came under the price support/production control program, the location of domestic tobacco production has barely changed. In 1982, North Carolina and Kentucky produced 64 percent of U.S. tobacco, slightly more than their share in 1950, and considerably above their 40-percent share in 1880.

The U.S. tobacco industry has grown unevenly. Per capita consumption of chewing tobacco, cigars, and smoking tobacco peaked between 1890 and 1910, although peaks in total consumption came later (*7*). Few cigarettes were consumed in the United States before 1910, as growth in U.S. cigarette consumption paralleled the development of a new blend, the American blend in 1913. The American blend made a lighter and milder cigarette, and consumption grew rapidly, particularly among the expanding urban population of the United States. Over time, new blends, sizes, and other changes were made in cigarettes to meet the desires of the U.S. population. Filters and lower tar and nicotine cigarettes were introduced as concerns mounted about cigarette smoking and its association with various diseases.

Consumption of Tobacco Products

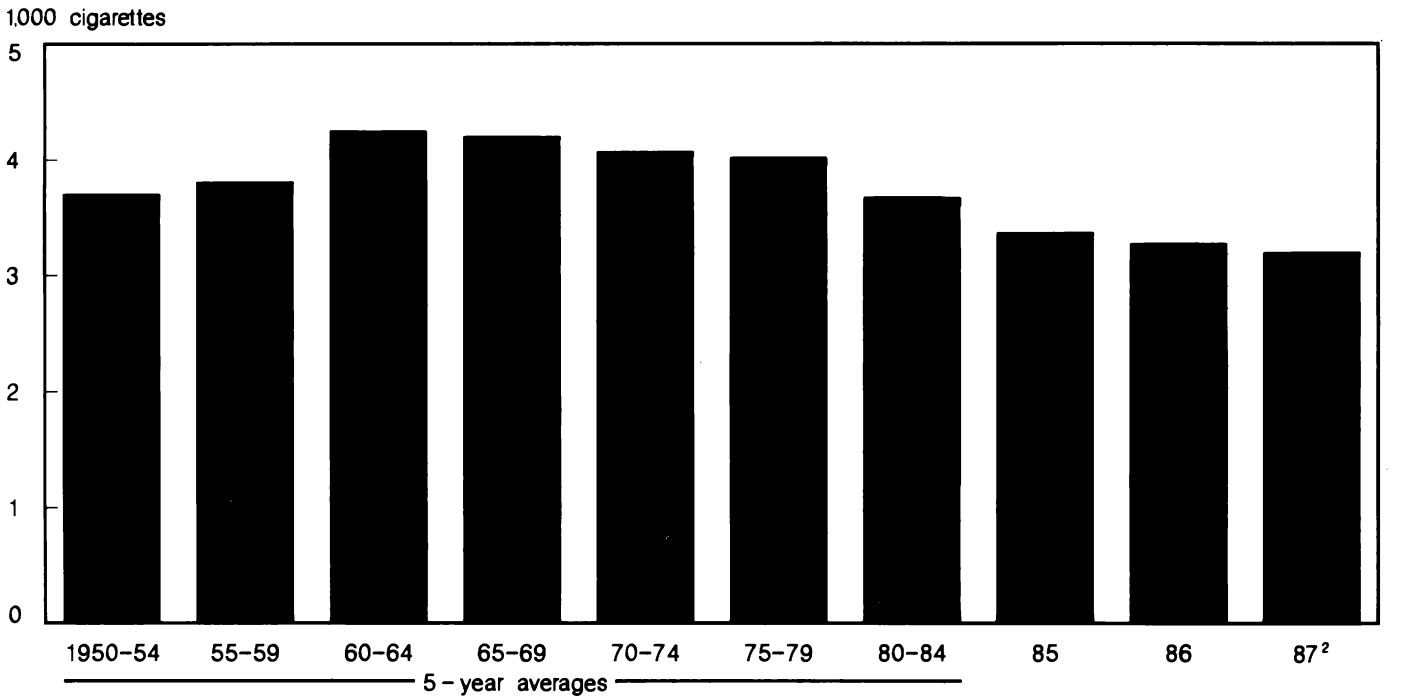
Manufacturers, wholesalers, retailers, governments, and farmers receive revenues from tobacco from its use in cigarettes, cigars, smoking and chewing tobacco, and snuff.

Cigarettes

Cigarettes are the primary product made from tobacco, accounting for about 85 percent of the tobacco used in the United States. U.S. consumption of cigarettes grew 55 percent from 1950 to 1986. Consumption peaked at 640 billion cigarettes in 1981, 70 percent above the 1950 level (table 1). Although per capita consumption also increased from 1950 to 1963, it has steadily declined since 1963 and is now at its lowest level since 1944 (fig. 2). Per capita consumption reached a record 4,345 cigarettes in 1963

Figure 2

Per capita consumption of cigarettes[1]



1/ Persons aged 18 and older. 2/ Projected.

Table 1—Cigarettes: U.S. output, removals, and consumption

Year	Total output	Taxable removals [1]	Shipments to—		Exports	Total U.S. consumption [4]
			Overseas forces [2]	Puerto Rico and others [3]		
	Billion					
1950	392.0	360.2	15.6	1.9	14.3	375.8
1951	418.8	379.7	20.1	2.0	16.8	399.8
1952	435.5	394.1	21.7	1.9	16.4	415.8
1953	423.1	386.8	18.8	2.0	16.2	405.6
1954	401.8	368.7	15.9	1.8	15.4	384.6
1955	412.3	382.1	13.2	2.0	15.1	395.3
1956	424.2	393.3	13.3	2.0	15.7	406.6
1957	442.3	409.4	13.7	2.1	17.0	423.1
1958	470.5	436.4	13.4	2.2	18.1	449.8
1959	489.9	453.7	13.7	2.5	19.6	467.4
1960	506.9	470.1	14.3	2.5	20.2	484.4
1961	528.3	488.1	14.6	2.8	22.2	502.7
1962	535.5	494.5	13.9	3.1	24.1	508.4
1963	550.6	509.6	14.3	3.2	23.6	523.9
1964	539.9	497.4	13.8	3.7	25.1	511.2
1965	556.8	511.5	17.2	3.9	23.1	528.7
1966	567.3	522.5	18.7	3.9	23.5	541.2
1967	576.2	527.8	21.4	3.9	23.7	549.2
1968	579.5	523.0	22.6	4.7	26.5	545.7
1969	557.6	510.5	18.4	3.7	25.0	528.9
1970	583.2	532.8	18.4	3.7	29.2	536.4
1971	576.4	528.9	14.7	2.7	31.8	555.1
1972	599.1	551.0	12.3	2.1	34.6	566.8
1973	644.2	590.3	12.4	2.0	41.5	589.7
1974	635.0	576.2	10.4	1.9	46.9	599.0
1975	651.2	588.3	10.6	1.5	50.2	607.2
1976	693.4	617.9	8.8	1.9	61.4	613.5
1977	665.9	592.0	10.2	1.1	66.8	617.0
1978	695.9	614.2	9.6	1.2	74.4	616.0
1979	704.4	614.0	13.0	1.1	79.7	621.5
1980	714.1	620.5	11.1	1.1	82.0	631.5
1981	736.5	638.1	8.4	1.0	82.6	640.0
1982	694.2	614.1	7.5	1.0	73.6	634.0
1983	667.0	597.5	8.1	.9	60.7	600.0
1984	668.8	597.8	9.8	.8	56.5	600.4
1985	665.3	595.0	6.9	.8	58.9	594.0
1986	658.0	583.1	9.6	.8	63.9	583.8
1987 [5]	680.0	575.0	8.0	.8	100.0	574.0

[1] Removed from U.S. factories and Federal excise tax paid. [2] Also includes ship stores and small tax-exempt categories. [3] Includes Virgin Islands, Guam, American Samoa, Wake, Canton, and Enderbury Island. [4] Allows for estimated inventory change for 1971–87. [5] Estimated.
Source: (*12*).

and then declined in 1964 following the release of the first Surgeon General's report linking cigarette smoking to lung cancer and other diseases. Per capita consumption declined 25 percent from 1963 to 1986 (table 2).

Despite the many cigarettes smoked in the United States over the last 60 years, cigarette smoking is a relatively new phenomenon in this country. (Yet, some forms of cigarette smoking were recorded as early as the 1400's.)

In 1881, James Bonsack invented a cigarette-making machine that vastly increased cigarette production, particularly after some improvements were made in the original machine during the early years. Machinery became increasingly efficient by the early 1900's, and blended cigarettes that included flue-cured, burley, and oriental tobaccos were introduced in 1913.

Manufacturing, distributing, and promoting cigarettes became standardized by the end of World War I in 1918. The cigarette industry then grew rapidly despite the setbacks from studies linking smoking to various diseases.

Approximately 30 percent of adults smoke cigarettes, compared with a high of 45 percent in 1954 and 1958 (*2*). Smoking rates for males peaked at 51 percent in the mid-1960's then declined to 37 percent by 1979. Female smoking rates peaked at about 33 percent in the mid-1970's and have since stabilized. But according to a 1979 Government survey, female participation rates have declined (*18*).

The Surgeon General formed an advisory committee in 1962 to assess the smoking-health question and make appropriate recommendations. Following the committee's 1964 report, Congress mandated the Federal Trade Commission (FTC) to require health warning labels on cigarette packages and warnings on all cigarette advertising on July 1, 1965. This was the first in a series of legislated requirements relative to advertising and selling cigarettes in the United States. Beginning January 1, 1971, legislation prohibited radio and television advertising and required a stronger warning on cigarette packages. Cigarette packages from January 1971 to October 1985 warned, "The Surgeon General has determined that cigarette smoking is dangerous to your health." The warning label on cigarette packages was changed in October 1985. Four separate messages about the hazards of smoking are now rotated at about 3-month intervals:

- Surgeon General's Warning: Smoking Causes Lung Cancer, Heart Disease, and Emphysema and May Complicate Pregnancy

Table 2—Cigarettes consumed per capita in the United States (including overseas forces)

Year	Cigarettes consumed per capita (age 18 years and older)	
	Number	*Pounds* [1]
1950	3,522	9.54
1951	3,744	9.94
1952	3,886	10.44
1953	3,778	10.37
1954	3,546	9.59
1955	3,597	9.49
1956	3,650	9.35
1957	3,755	9.21
1958	3,953	9.46
1959	4,073	9.44
1960	4,171	9.64
1961	4,266	9.84
1962	4,265	9.69
1963	4,345	9.70
1964	4,195	9.22
1965	4,259	9.37
1966	4,287	9.08
1967	4,280	8.86
1968	4,186	8.69
1969	3,993	8.11
1970	3,985	7.77
1971	4,037	7.75
1972	4,043	7.95
1973	4,148	7.92
1974	4,141	7.90
1975	4,123	7.73
1976	4,092	7.35
1977	4,051	7.21
1978	3,967	6.89
1979	3,861	7.00
1980	3,849	6.78
1981	3,836	6.52
1982	3,739	6.45
1983	3,488	6.19
1984	3,446	5.89
1985	3,370	5.91
1986 [2]	3,274	5.73
1987 [3]	3,196	5.65

[1] Unstemmed processing weight. [2] Preliminary. [3] Estimated.
Source: (*12*).

- Surgeon General's Warning: Quitting Smoking Now Greatly Reduces Serious Health Risk

- Surgeon General's Warning: Smoking by Pregnant Women May Result in Fetal Injury and Premature Birth

- Surgeon General's Warning: Cigarette Smoke Contains Carbon Monoxide

The kinds of cigarettes Americans smoke have changed markedly since 1950. Americans have switched from unfiltered to filtered cigarettes: about 95 percent of cigarettes produced in the United States were filter-tipped by 1986, compared with 1 percent in 1950 (table 3). Lower tar and nicotine cigarettes also have become more prevalent as manufacturers shifted blends, used more efficient filters, and

Table 3—Cigarette production: Estimated output of nonfilter tip and filter tip by length

Year	Total output	Nonfilter tip				Filter tip				
		Total	Regular (70 mm)	Long (80 mm)	King (85 mm)	Total	Regular (70 mm)	Long (80 mm)	King (85 mm)	Extra long (100 mm)
					Billion					
1950	392.0	389.8	353.3	—	36.5	2.2	2.2	—	—	—
1951	418.8	415.8	364.6	—	51.2	3.0	3.0	—	—	—
1952	435.5	429.9	353.4	—	76.5	5.6	5.0	—	0.6	—
1953	423.1	410.7	297.0	—	113.7	12.4	6.0	—	6.4	—
1954	401.8	364.9	253.3	—	111.6	36.9	6.9	—	30.0	—
1955	412.3	335.3	224.5	—	110.8	77.0	9.0	6.5	61.5	—
1956	424.2	307.3	203.9	2.6	100.8	116.9	7.1	17.9	91.9	—
1957	442.3	274.0	180.3	5.6	88.1	168.3	8.0	46.1	114.2	—
1958	470.5	257.5	169.0	10.0	78.5	213.0	6.9	54.5	151.6	—
1959	489.9	251.1	159.0	5.8	86.3	238.8	5.5	48.2	185.1	—
1960	506.9	248.9	151.9	2.8	94.2	258.0	3.6	46.4	208.0	—
1961	528.3	251.2	148.5	.5	102.2	277.1	3.1	47.4	226.6	—
1962	535.5	243.0	139.8	.5	102.7	292.5	2.4	48.1	242.0	—
1963	550.6	231.6	128.7	—	102.9	319.2	2.0	47.1	270.1	—
1964	539.9	211.2	111.7	—	99.5	328.7	1.8	42.4	284.5	—
1965	556.8	198.0	101.7	—	96.3	358.8	1.5	43.2	312.1	2.0
1966	567.3	180.0	91.1	—	88.9	387.3	1.2	43.3	331.8	11.0
1967	576.2	159.3	79.1	—	80.2	416.9	1.1	38.7	322.0	55.1
1968	579.5	145.5	69.0	—	76.5	434.0	1.1	41.1	315.3	76.5
1969	557.6	125.3	60.0	—	65.3	432.3	.9	40.2	304.7	86.5
1970	583.2	115.8	53.9	—	61.9	467.4	.8	47.9	313.9	104.8
1971	576.4	101.2	47.1	—	54.1	475.2	.7	50.3	311.1	113.1
1972	599.1	97.4	44.8	—	52.6	501.6	.6	52.0	323.0	126.0
1973	644.2	94.2	42.8	—	51.4	550.0	3.2	61.8	349.0	136.0
1974	635.0	84.5	39.0	—	45.5	550.5	.1	62.9	336.4	151.1
1975	651.2	80.3	36.2	—	44.1	570.8	.1	69.4	335.4	167.0[1]
1976	693.4	79.8	34.8	—	45.0	613.6	—	82.7	356.3	174.6[1]
1977	665.9	70.4	30.5	—	39.9	595.5	—	70.0	344.4	180.9[1]
1978	695.9	63.2	28.0	—	35.2	632.7	—	78.6	353.8	200.3[1]
1979	704.4	57.5	25.8	—	31.7	646.9	—	82.0	346.2	218.7[1]
1980	714.1	53.5	23.3	—	30.2	660.7	—	83.8	354.7	222.2[1]
1981	736.5	53.8	24.2	—	29.6	682.7	—	74.2	371.4	237.1[1]
1982	694.2	47.0	21.3	—	25.7	647.2	—	73.1	330.7	243.4[1]
1983	667.0	42.5	18.6	—	23.9	624.5	—	75.9	307.8	240.8[1]
1984	668.8	39.0	17.7	—	21.3	629.8	—	76.5	302.5	250.8[1]
1985	665.3	36.2	16.0	—	20.2	629.1	—	74.8	302.6	251.7[1]
1986	658.0	33.1	14.7	—	18.4	624.9	—	74.7	298.4	251.8[1]

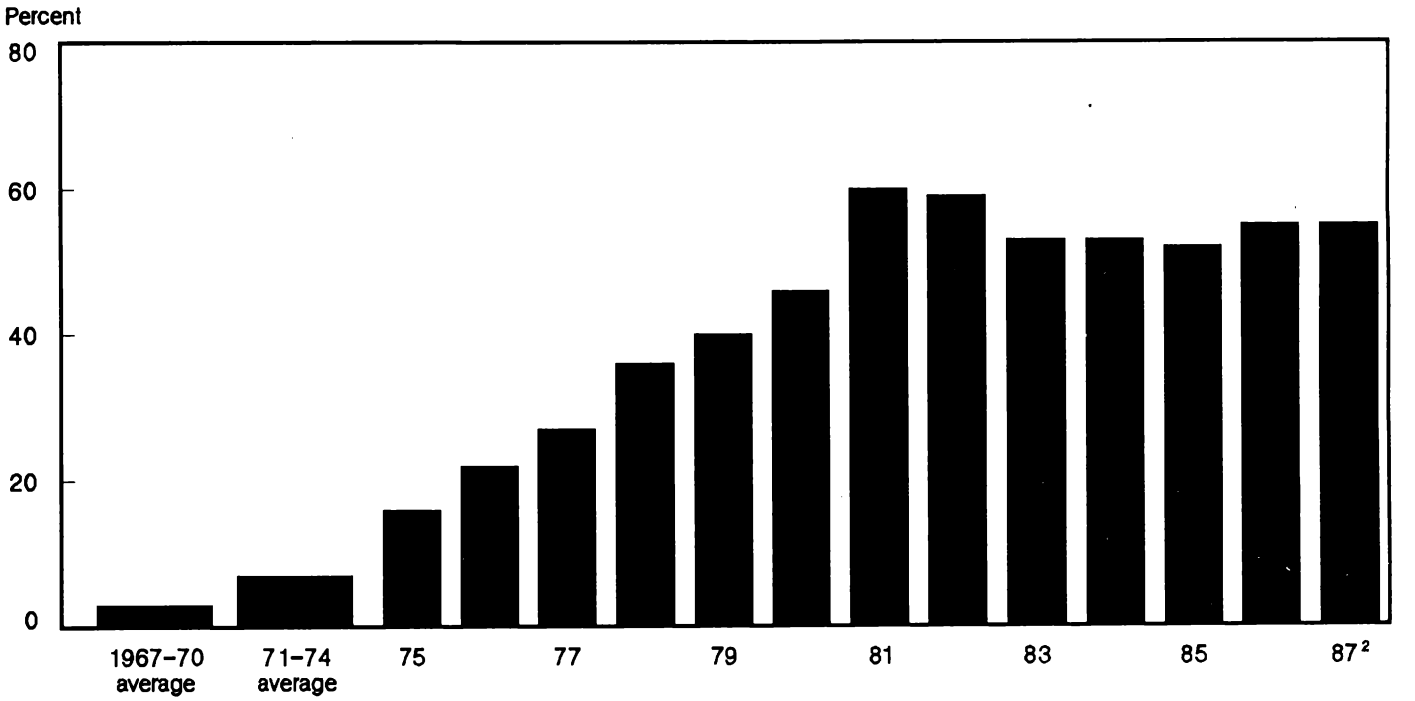
— = Not applicable.
[1] Includes 120 mm cigarettes.
Source: (*12*).

changed the air content of smoke. Much of the control of tar and nicotine is in the interaction of the paper and filter (*8*). It is essential that cigarettes have a highly uniform tar and nicotine content because smokers are accustomed to a certain taste from their brands of cigarettes.

Manufacturers heavily promote low-tar, low-nicotine cigarettes. About 43 percent of their advertising expenditures went to promote sales of very low-tar cigarettes (9 milligrams or less of tar) in 1984. Yet only about 32 percent of sales were in this category. Low-tar cigarettes (15 milligrams or less of tar) rapidly gained in popularity during the 1970's and reached 60 percent of production in 1981 (fig. 3). However, the percentage declined to 59 in 1982 and fell further to 53 percent in 1983 and 1984. It rose to 54 percent in 1985 and 1986 but still indicates a return to full-flavored cigarettes.

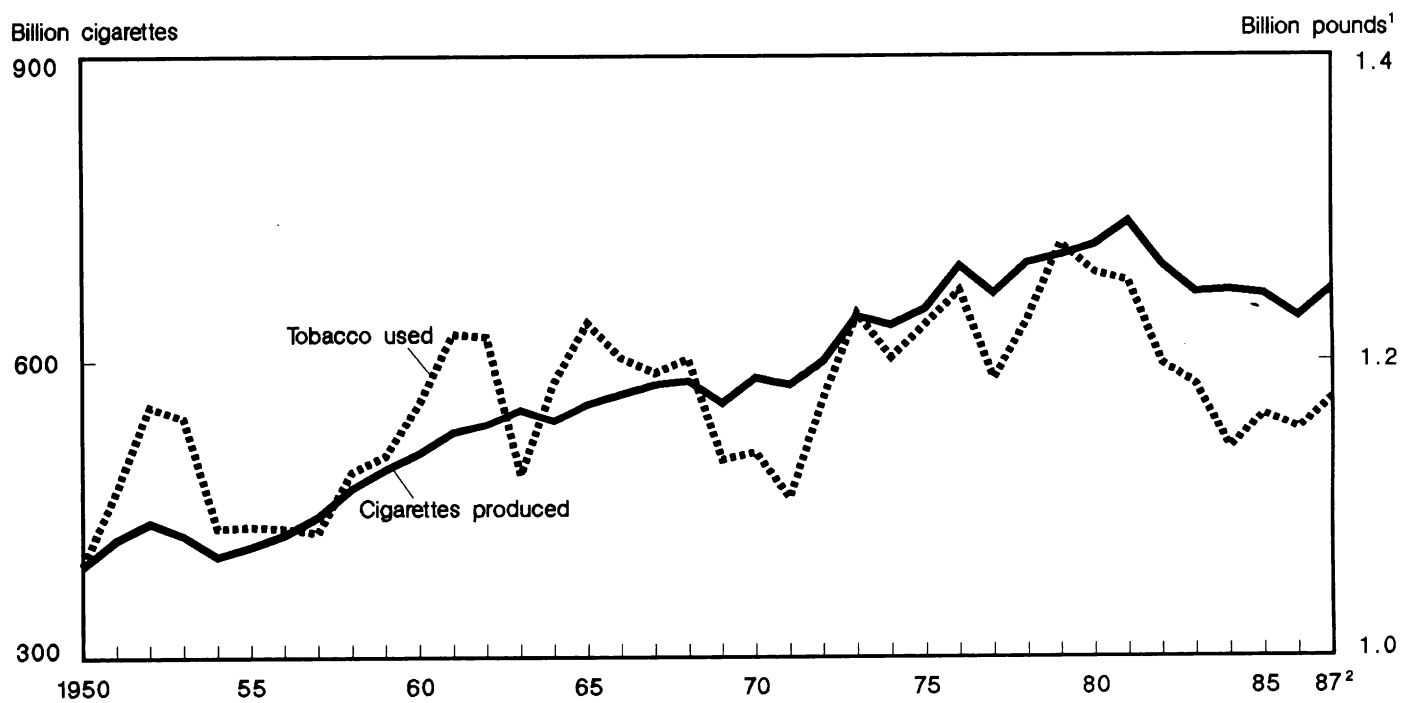
The switch to filters, together with other technologies reducing leaf use, lowered the amount of tobacco used per 1,000 cigarettes from 2.7 pounds in 1950 to 1.8 pounds in 1986 (table 4). But this decline has been uneven, with a greater fall in flue-cured than in burley tobacco. Despite the drop in tobacco used per cigarette, total tobacco annually used in cigarettes remained relatively stable from 1950 to 1981 (fig. 4). Total use fell from 1981 to 1986 from lower consumption. However, because of increased imports, use of domestic tobacco declined during the 1970's, mostly in flue-cured tobacco.

Figure 3
Market share of low-tar cigarettes[1]



1/ 15 mg. 'tar' or less. 2/ Latest year subject to revision.

Figure 4
Cigarettes produced and tobacco used



1/ Billion pounds in unstemmed processing weight. 2/ Projected.

The share of the population that smokes is declining, and the U.S. Department of Health and Human Services and voluntary health agencies are continuing efforts to discourage smoking. Cigarettes, cigars, and pipes could be smoked almost anywhere 15 years ago. The 1972 Surgeon General's report on smoking and health indicated a danger from passive smoke; that is, involuntary smoking, which occurs from breathing in a smoke-filled room. Since that report, laws in over 40 States prohibit smoking in certain places or segregate smokers from nonsmokers. Many cities and counties have similar laws.

The cumulative effects of these links no doubt account for some of the lowered consumption. Warner analyzed cigarette consumption from base data for years prior to the antismoking campaigns (*19*). By 1975, persistent publicity and related public policies lowered actual per capita consumption 20 to 30 percent below the predicted value (based on the 1947–63 trend) (*19*).

Total expenditures for cigarettes in the United States increased about 900 percent in 1950–86, from $3.6 billion to $31.8 billion (table 5). Federal tax collections from cigarette sales rose about 367 percent from 1950 to 1985, while State collections rose 1,000 percent (table 6). The Federal excise tax made up over half the manufacturers' wholesale list price of cigarettes in 1950. By 1982, before the increase in Federal excise taxes in early 1983, the Federal tax fell to less than 20 percent of the wholesale list price. The doubling of the Federal excise tax to 16 cents per pack raised the Federal tax portion above 25 percent,

Table 4—Tobacco leaf used in cigarettes

Year	Tobacco				
	Flue-cured	Burley	Maryland	Imported	Total
	Pounds per 1,000 cigarettes [1]				
1950	1.577	0.913	0.056	0.163	2.709
1951	1.557	.878	.048	.172	2.655
1952	1.575	.884	.053	.175	2.687
1953	1.595	.915	.054	.182	2.746
1954	1.555	.906	.052	.192	2.705
1955	1.506	.888	.051	.194	2.639
1956	1.438	.874	.050	.200	2.562
1957	1.379	.832	.041	.199	2.451
1958	1.349	.796	.036	.212	2.393
1959	1.296	.768	.033	.222	2.319
1960	1.284	.767	.032	.229	2.312
1961	1.276	.763	.030	.237	2.306
1962	1.238	.768	.030	.235	2.271
1963	1.217	.756	.029	.231	2.232
1964	1.195	.750	.028	.224	2.197
1965	1.155	.778	.030	.237	2.200
1966	1.081	.767	.033	.238	2.119
1967	1.019	.750	.033	.267	2.069
1968	1.004	.742	.031	.295	2.072
1969	.979	.716	.055	.282	2.032
1970	.940	.686	.047	.279	1.951
1971	.923	.669	.042	.286	1.920
1972	.926	.686	.027	.322	1.961
1973	.913	.672	.022	.304	1.911
1974	.880	.658	.020	.335	1.893
1975	.842	.645	.038	.355	1.880
1976	.816	.607	.031	.342	1.797
1977	.789	.608	.024	.363	1.784
1978	.739	.589	.027	.408	1.763
1979	.701	.587	.031	.494	1.813
1980	.671	.570	.031	.490	1.762
1981	.606	.547	.027	.520	1.700
1982	.608	.559	.040	.519	1.726
1983	.603	.550	.040	.582	1.775
1984	.587	.492	.043	.585	1.708
1985	.610	.501	.042	.595	1.748
1986	.585	.519	.040	.650	1.794

[1] Unstemmed processing weight.
Source: (*12*).

Table 5—U.S. spending on tobacco products

Year	Tobacco product			
	Total	Cigarettes	Cigars [1]	Others [2]
	Million dollars			
1950	4,392	3,586	514	292
1951	4,685	3,876	526	283
1952	5,073	4,246	545	282
1953	5,264	4,436	560	268
1954	5,104	4,292	552	260
1955	5,217	4,409	550	258
1956	5,481	4,681	556	244
1957	5,877	5,072	556	243
1958	6,182	5,341	584	257
1959	6,764	5,854	629	281
1960	7,187	6,244	649	294
1961	7,472	6,538	631	303
1962	7,608	6,675	634	299
1963	8,004	7,055	649	300
1964	8,113	7,024	765	324
1965	8,651	7,609	734	308
1966	9,140	8,113	718	309
1967	9,582	8,572	706	304
1968	10,112	9,094	703	315
1969	10,444	9,404	701	339
1970	11,544	10,448	707	389
1971	12,155	11,040	700	415
1972	12,910	11,765	720	425
1973	13,485	12,325	730	430
1974	14,475	13,270	705	500
1975	15,505	14,250	680	575
1976	16,410	15,100	675	625
1977	17,190	15,850	665	675
1978	18,030	16,600	680	750
1979	19,150	17,650	670	830
1980	21,000	19,400	670	930
1981	22,950	21,200	710	1,040
1982	25,310	23,525	685	1,100
1983	28,710	26,840	705	1,165
1984	30,705	28,750	745	1,210
1985	32,165	30,250	685	1,230
1986 [3]	33,700	31,800	680	1,220
1987 [4]	35,400	33,540	660	1,200

[1] Includes small cigars (cigarette size). [2] Smoking tobacco, chewing tobacco, and snuff. [3] Preliminary. [4] Estimated.
Source: (*12*).

but a number of wholesale price hikes lowered the portion to near 20 percent in 1986. State and local taxes rose rapidly during the 1950's and 1960's to the extent that the sum of Federal and State taxes remained near 50 percent of the average retail price. Tax rates no longer kept up with inflation by the mid- and late 1970's, so Federal and State excise taxes dropped to about 30 percent of the retail price by the early 1980's.

The portion of disposable income spent on cigarettes has also declined. Slightly more than 1 percent of disposable income was spent on cigarettes in 1984 compared with 1.6 percent in 1965.

Total cigarette consumption declined 1 percent in 1982 and another 5 percent in 1983, but remained about the same in 1984. Consumption fell about 1 percent in 1985, another 2 percent in 1986, and is expected to continue falling 2 percent each year for the rest of this decade.

Future consumption depends on excise tax increases, wholesale price increases, smoking restrictions, and antismoking activity, as well as other factors such as real incomes, research findings about smoking and health, and advertising and promotion activities by cigarette manufacturers.

Table 6—Government revenues from tobacco products

Year	Federal Government revenues from—				Revenues to State and local governments		Total government revenue from tobacco products [4]
	Cigarettes [1]	Cigars [2]	Other [3]	Total	State	Local	
				Million dollars			
1950	1,263	43	41	1,348	445	NA	1,793
1951	1,360	44	37	1,446	461	NA	1,907
1952	1,580	46	22	1,662	485	NA	2,147
1953	1,546	46	21	1,614	486	NA	2,100
1954	1,477	45	20	1,543	476	NA	2,019
1955	1,530	46	20	1,596	500	NA	2,096
1956	1,576	45	18	1,639	573	NA	2,212
1957	1,639	46	18	1,704	614	NA	2,318
1958	1,750	49	18	1,817	673	NA	2,490
1959	1,792	51	17	1,860	841	NA	2,701
1960	1,887	50	17	1,955	998	NA	2,953
1961	1,950	50	17	2,019	1,070	NA	3,094
1962	1,961	50	16	2,030	1,130	NA	3,160
1963	2,047	51	17	2,116	1,225	NA	3,341
1964	1,987	62	18	2,069	1,264	93	3,426
1965	2,014	58	16	2,090	1,482	103	3,675
1966	1,993	56	2	2,051	1,633	111	3,795
1967	2,111	56	2	2,169	1,760	109	4,038
1968	2,086	54	2	2,142	2,067	99	4,308
1969	2,020	56	1	2,077	2,186	113	4,376
1970	2,113	55	2	2,170	2,458	134	4,762
1971	2,098	54	2	2,154	2,637	154	4,945
1972	2,140	53	1	2,195	2,951	179	5,325
1973	2,404	53	3	2,460	3,126	145	5,731
1974	2,308	52	2	2,362	3,287	113	5,762
1975	2,249	50	3	2,302	3,369	119	5,790
1976	2,322	48	4	2,374	3,445	125	5,944
1977	2,343	35	4	2,382	3,580	131	6,093
1978	2,537	38	5	2,580	3,642	132	6,354
1979	2,409	35	4	2,448	3,700	132	6,280
1980	2,564	41	4	2,609	3,820	134	6,563
1981	2,535	40	4	2,579	3,895	134	6,608
1982	2,485	34	6	2,525	4,060	154	6,739
1983	4,609	31	9	4,649	4,044	164	8,857
1984	4,729	30	10	4,772	4,230	179	9,181
1985	4,540	23	11	4,574	4,361	193	9,128
1986 [5]	4,660	28	12	4,700	4,506	197	9,403

NA = Not available.

[1] Includes large cigarettes. [2] Includes small cigars and revenue on cigars from Puerto Rico. [3] From 1950 to 1965, includes Federal excise tax on chewing and smoking tobacco and snuff. This tax was repealed effective January 1, 1966. A Federal excise tax was reinstated on snuff and chewing tobacco effective July 1, 1986. From 1966 to 1986, includes cigarette paper and tubes and imported cigarettes and cigars. [4] From 1950 through 1963, excludes local government. [5] Preliminary.

Source: (*12*).

Cigars

The earliest use of tobacco was reportedly for smoking cigars. Consumption of cigars in the United States remained small until the 1800's. By 1880, total U.S. production reached 2.5 billion large cigars (weighing more than 3 pounds per 1,000 cigars). Production continued to rise to 8.1 billion large cigars by 1920, and then declined. However, Americans consumed a record 9.1 billion cigars in 1964, as people substituted cigars for cigarettes after the first Surgeon General's report in 1964 (table 7). Consumption has since declined dramatically (fig. 5).

Consumption of large cigars declined to 3 billion in 1986, only about 33 percent of the 1964 peak and 4 percent below 1985 consumption. Sales of lower priced cigars have fallen with rising prices, and a larger portion of the sales have become concentrated in the high-price category (over $120 per 1,000 cigars).

Smoking Tobacco

Pipe smoking has been the most durable form of tobacco use throughout history. Pipe smoking was recorded in the early 1500's in North America. Other than in pipes, smoking tobacco is also used for roll-your-own cigarettes.

Consumption of smoking tobacco has declined after peaking in the 1930's (fig. 6). Manufactured cigarettes

Table 7—Cigars: Output, removals, and consumption [1]

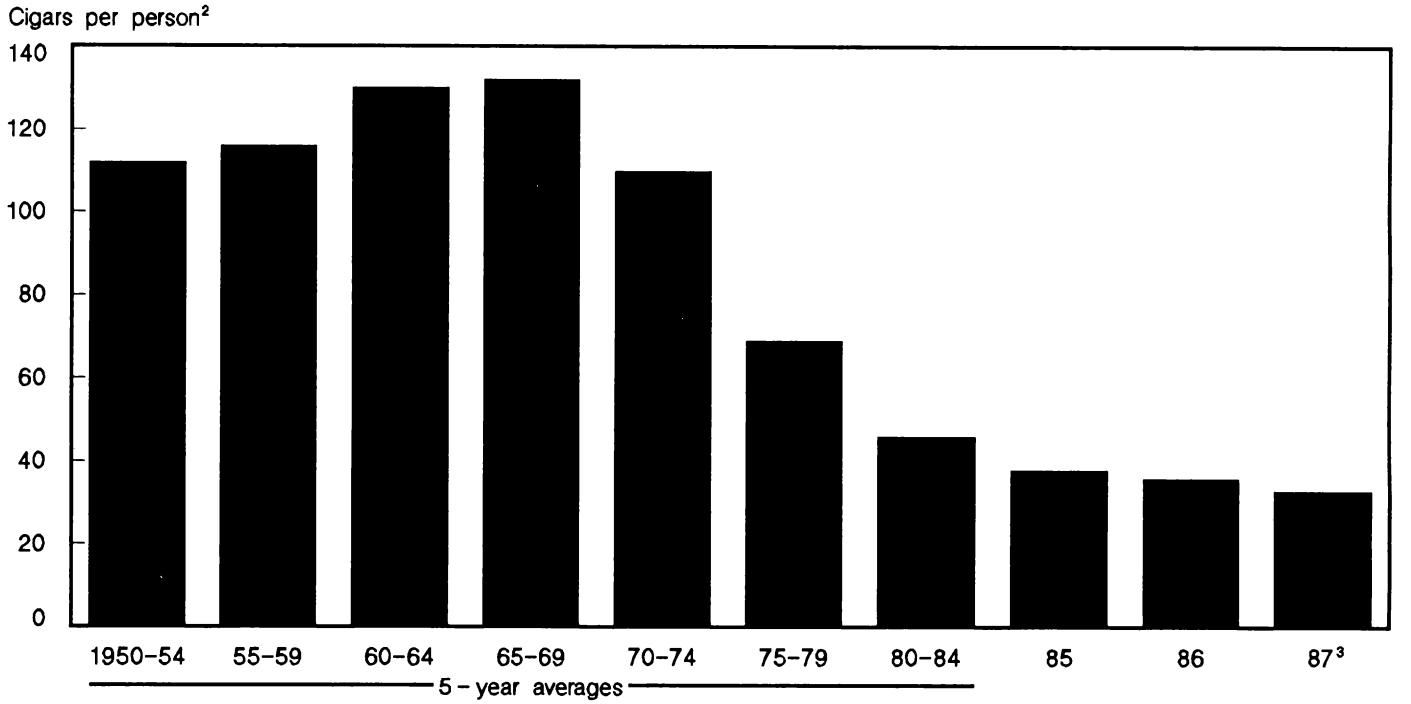
Year	Total output	Removals		Shipments from Puerto Rico (taxable)	Imports	Exports	Total U.S. consumption [2]
		Taxable	Tax-exempt				
				Million			
1950	5,558	5,525	47	1	12	2	5,583
1951	5,774	5,695	85	1	14	3	5,792
1952	6,026	5,951	102	2	15	3	6,067
1953	6,122	6,025	90	10	17	6	6,136
1954	6,029	5,896	89	50	16	8	6,043
1955	6,004	5,915	82	84	20	6	6,095
1956	5,998	5,863	72	93	23	9	6,042
1957	6,145	5,995	79	124	26	9	6,213
1958	6,469	6,260	87	137	28	9	6,503
1959	6,857	6,717	103	148	31	10	6,989
1960	6,991	6,728	105	198	32	11	7,052
1961	6,642	6,558	118	354	24	16	7,038
1962	6,684	6,442	126	483	23	20	7,054
1963	6,716	6,621	144	526	24	33	7,282
1964	8,736	8,122	193	809	28	44	9,108
1965	7,899	7,578	180	913	25	55	8,641
1966	7,165	7,076	193	1,075	25	73	8,296
1967	6,858	6,846	197	1,099	30	76	8,096
1968	7,184	6,759	169	1,036	48	66	7,946
1969	6,931	6,739	169	1,080	45	65	7,968
1970	7,094	6,706	152	1,259	46	54	8,108
1971	6,707	6,506	131	1,222	48	46	7,861
1972	6,025	5,896	139	1,272	62	75	7,294
1973	5,655	5,554	143	1,304	75	107	6,969
1974	5,284	5,008	136	1,224	74	86	6,356
1975	4,524	4,476	125	1,216	79	92	5,804
1976	4,178	4,040	144	1,225	95	124	5,373
1977	3,927	3,776	134	1,104	97	117	4,994
1978	3,795	3,621	164	986	99	166	4,702
1979	3,601	3,353	179	842	107	177	4,304
1980	3,454	3,291	201	590	119	200	4,001
1981	3,428	3,256	160	534	124	181	3,893
1982	3,169	3,056	158	500	134	181	3,667
1983	3,135	3,031	140	429	135	130	3,605
1984	3,130	2,962	121	371	121	104	3,471
1985	2,826	2,740	95	301	120	101	3,155
1986	2,950[3]	2,909[3]	96	NA[3]	112	80	3,037
1987 [4]	2,350[3]	2,685[3]	85	NA[3]	115	70	2,815

NA = Not available.

[1] Includes large cigars and cigarillos. [2] Total removals (sales) from U.S. and Puerto Rican factories, plus imports, minus exports. [3] Puerto Rico no longer reported separately. Output and taxable removals include United States and Puerto Rico combined. [4] Estimated.

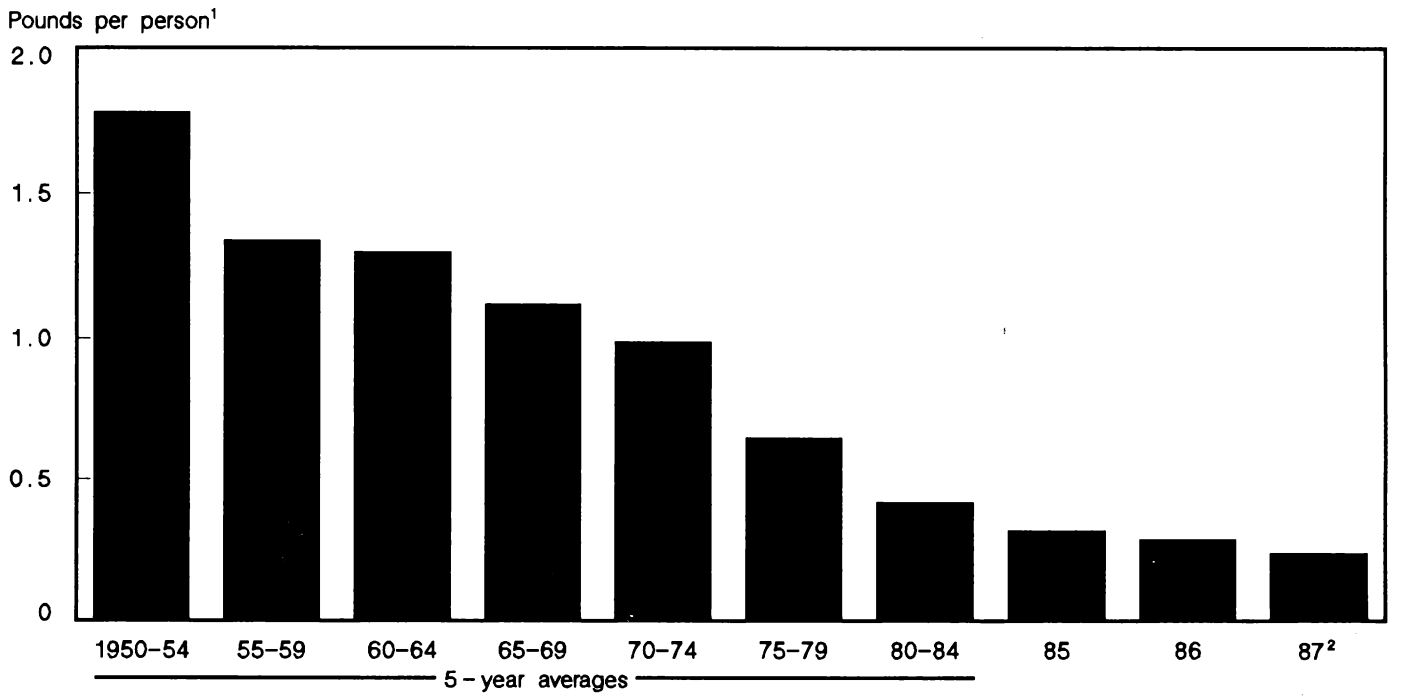
Source: (*12*).

Figure 5
Per capita consumption of cigars[1]



1/ Includes large cigars and cigarillos. 2/ Males aged 18 and older. 3/ Projected.

Figure 6
Per capita consumption of smoking tobacco



1/ Males aged 18 and older. 2/ Projected.

have been substituted for the roll-your-own, and the faster paced society probably limits pipe smoking. Consumption of smoking tobacco reached a record-low 24.4 million pounds in 1986 (table 8). About 70 percent of the smoking tobacco produced in 1986 was used in pipes.

Chewing Tobacco

More males chew tobacco, and much of it occurs in occupations where smoking is prohibited. The earliest accounts of chewing tobacco are from the early 1500's. Chewing was popular in the Connecticut Valley during the colonial period. The custom, known as fudgeon, indicates that the tobacco was heavily sweetened.

Manufacturers produce several types of chewing tobacco: plug, loose-leaf (formerly known as scrap), and twist. Another category, fine-cut, was included until it was reclassified as snuff in 1981. The types differ in how they are manufactured and packaged and in the kind of tobacco and flavoring used. Most chewing tobacco is flavored with ingredients such as rum, licorice, sugar, and spices. Plug-chewing was the dominant type 60 years ago, but output has declined by over 50 percent during the past 30 years, while loose-leaf output has almost doubled (table 9). Total production of chewing tobacco declined during the 1950's and 1960's, then rose during the 1970's (fig. 7). Production has fallen since 1982. Consumption of chewing tobacco normally falls during recessions (declines in economic activity) and rises during economic recovery. However, despite the economic recovery, total consumption of chewing tobacco in 1983 and 1984 was below 1982's level.

Table 8—Smoking tobacco: Output, removals, and consumption

Year	Total output	Removals		Imports	Exports	Total U.S. consumption [1]
		Taxable	Tax-exempt			
		Million pounds				
1965	71.8	67.3	3.0	2.1	1.0	71.4
1966	67.3	65.3	1.5	3.3	.9	69.2
1967	64.8	62.7	2.0	3.7	1.3	67.1
1968	66.3	64.1	1.9	5.5	1.8	69.7
1969	63.9	62.6	1.6	5.7	1.1	68.8
1970	69.4	65.6	1.5	8.4	.9	74.6
1971	60.5	61.3	1.4	8.4	1.2	69.9
1972	55.9	55.1	1.3	11.9	1.1	67.2
1973	53.0	51.7	1.5	8.0	1.2	60.0
1974	49.0	49.0	1.0	10.9	.9	60.0
1975	46.2	45.6	1.0	8.7	1.6	53.7
1976	44.6	43.7	.9	9.9	.8	53.7
1977	40.7	40.2	.7	7.2	.8	47.3
1978	36.4	35.2	.8	9.0	.9	44.2
1979	32.8	32.3	.9	7.0	.9	39.3
1980	32.2	30.6	.8	6.7	.8	37.3
1981	30.3	30.0	.8	6.6	.9	36.5
1982	28.3	27.9	.7	6.1	1.0	33.7
1983	28.0	27.0	.6	6.7	1.0	33.3
1984	24.5	24.3	.4	5.7	.9	29.5
1985	22.1	21.8	.4	5.4	.6	27.0
1986 [2]	19.4	19.0	1.2	5.0	.8	24.4
1987 [3]	17.5	17.0	.6	5.6	.7	22.5

[1] Total removals (sales) from U.S. and Puerto Rican factories, plus imports, minus exports. [2] Preliminary. [3] Estimated.
Source: (72).

Snuff

The use of pulverized tobacco for snuff is usually thought of as an 18th century activity. But snuff continues to be an important part of today's industry. Snuff is the only tobacco product whose consumption rose each year from 1979 to 1985 (consumption increased for the moist, rather than the dry, form of snuff).

In the 1700's, snuff was inhaled into the nostrils. This manner of use has virtually disappeared. Snuff is now taken orally, or "dipped." This method is related to chewing but does not involve the teeth. Users tuck a small quantity of snuff between the lower lip and gum, and then pack the finely ground or cut tobacco with the tongue.

The United States produces three basic types of snuff: dry, moist, and semimoist. These products are fine or coarse, flavored or toasted, and plain scented.

Dry snuff, generally known as Scotch, is plain powdered tobacco. The more popular snuff is more coarse; tobaccos are finely cut rather than pulverized. Manufacturers take extreme care to maintain the fla-

USDA photo

Retail tobacco product sales outlet displaying a variety of tobacco products including cigarettes, cigars, snuff, and pipes.

vor, texture, and aroma in standardized brands. Snuff users have a high degree of loyalty to particular brands and can readily detect changes in the formula.

The fine-cut category of chewing tobacco was included with snuff in 1981. After declining during the 1950's and 1960's, snuff consumption rebounded during the 1970's (table 9). Dry snuff consumption continued to decline, but moist snuff increased during the early 1980's because of the introduction of new brands and considerable advertising.

Legislation enacted in 1986 may hurt consumption of smokeless tobacco products (snuff and chewing) in the second half of the 1980's. The Consolidated Omnibus Budget Reduction Act of 1985 (P.L. 99–279, effective July 1986) placed Federal excise taxes on smokeless tobacco products. The act placed a 24-cent-per-pound tax on snuff and an 8-cent-per-pound tax on chewing tobacco.

The Comprehensive Smokeless Tobacco Health and Education Act of 1986 (P.L. 99–252, effective February 1987) required three rotating warning labels on smokeless tobacco products and in printed advertisements (except on billboards):

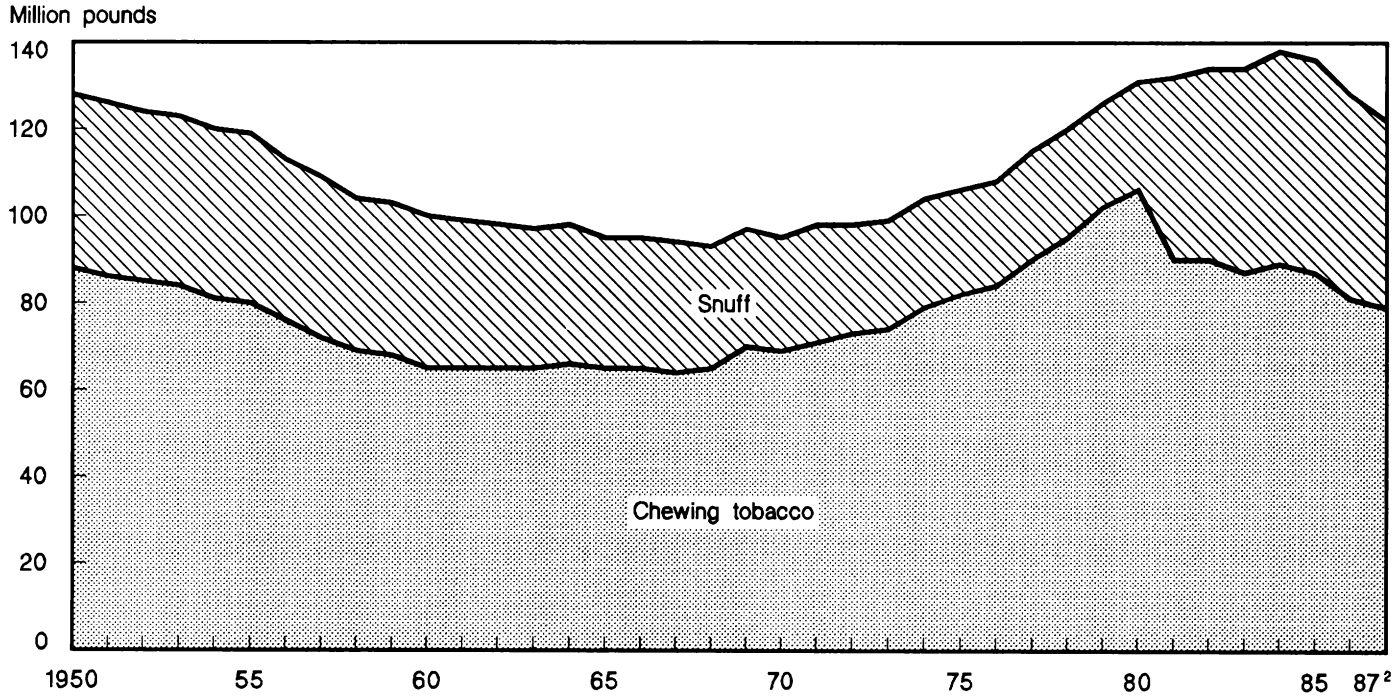
- This product may cause oral cancer
- This product may cause gum disease and tooth loss

Table 9—U.S. output of specified tobacco products

Year	Smoking tobacco	Chewing tobacco					Snuff	Small cigars [1]
		Plug	Twist	Fine-cut	Loose leaf	Total		
	Million pounds							*Million*
1950	107.7	40.3	5.5	2.7	39.0	87.5	40.0	68.9
1951	101.3	39.9	4.6	2.8	39.1	86.4	39.5	69.2
1952	96.8	39.1	4.8	2.8	38.2	84.9	38.8	67.1
1953	86.6	38.1	4.7	2.9	38.1	83.8	39.1	58.3
1954	83.7	36.9	4.9	2.9	36.6	81.3	38.5	61.2
1955	80.0	36.5	4.5	3.0	36.0	80.0	39.2	58.7
1956	71.5	33.0	4.3	2.9	35.5	75.7	37.7	63.6
1957	70.5	31.6	4.0	2.8	34.0	72.4	36.1	49.0
1958	76.0	29.6	3.8	2.9	33.0	69.3	34.8	170.0
1959	73.2	28.6	3.6	3.0	33.0	68.2	34.3	530.1
1960	73.8	26.4	3.4	3.1	32.0	64.9	34.6	148.7
1961	74.2	26.0	3.3	3.2	32.7	65.2	33.8	158.2
1962	70.9	26.0	2.9	3.3	32.5	64.7	33.2	164.0
1963	70.4	24.9	2.9	3.3	34.2	65.4	31.8	281.4
1964	82.5	25.9	2.8	3.5	34.0	66.2	31.4	973.9
1965	71.8	24.7	2.8	3.7	33.9	65.1	29.7	440.7
1966	67.3	24.3	2.7	3.9	34.3	65.2	29.5	445.3
1967	64.8	23.7	2.6	4.1	34.0	64.4	29.3	434.2
1968	66.3	22.9	2.6	4.3	35.7	65.4	27.1	525.6
1969	63.9	23.3	2.5	4.5	39.5	69.8	27.6	743.2
1970	69.4	22.0	2.4	4.8	39.5	68.7	26.5	933.4
1971	60.5	20.6	2.4	5.1	43.3	71.4	26.4	1,135.0
1972	55.9	19.6	2.2	5.2	45.6	72.6	25.5	4,022.0
1973	53.0	18.6	2.1	5.7	47.6	74.0	25.3	4,415.0
1974	49.0	18.0	2.2	6.2	52.9	79.2	25.0	3,101.0
1975	46.2	18.1	2.2	7.3	53.7	81.5	24.4	2,942.0
1976	44.6	16.7	2.3	8.3	56.3	83.6	24.8	2,246.0
1977	40.7	16.4	2.2	10.1	61.3	90.0	24.6	1,864.0
1978	36.4	15.9	2.1	12.0	64.6	94.6	25.1	1,645.0
1979	32.8	15.3	2.0	13.3	71.7	102.3	23.7	1,544.0
1980	32.2	17.2	1.9	14.5	72.1	105.7	25.5	1,440.0
1981	30.3	17.9	1.8	—[2]	70.3	90.0	42.4[2]	1,393.0
1982	28.3	15.7	1.7	—[2]	73.0	90.4	43.8[2]	1,316.0
1983	28.0	14.1	1.7	—[2]	71.0	86.8	46.7[2]	1,352.0
1984	24.5	12.7	1.7	—[2]	74.4	88.8	49.4[2]	1,256.0
1985	22.1	11.4	1.5	—[2]	74.0	86.9	48.7[2]	1,245.0
1986 [3]	19.4	10.4	1.4	—[2]	69.6	81.4	47.5[2]	988.0
1987 [4]	17.5	9.8	1.4	—[2]	66.8	78.0	45.0[2]	1,100.0

— = Not applicable.
[1] Cigarette size. [2] Product classification revised; snuff includes fine-cut chewing tobacco. [3] Preliminary. [4] Estimated.
Source: (*12*).

Figure 7
Production of smokeless tobacco[1]



1/ Fine-cut chewing tobacco redefined as snuff in 1981. 2/Projected.

- This product is not a safe alternative to cigarettes

In printed advertisements, circles and arrows draw attention to the warning labels. Legislation banned television and radio advertising of smokeless products in August 1986.

Revenue from Tobacco

Expenditures for tobacco products in the United States rose for many years, reaching $33.7 billion in 1986 (table 5), about 1.1 percent of consumers' disposable income and about three times the amount spent on tobacco products in 1970. About 94 percent of 1986 expenditures went to cigarettes, 2 percent to cigars, and 4 percent to other tobacco products (smoking tobacco, chewing tobacco, and snuff).

Cigarettes became the leading form of tobacco consumption during the 1920's and accounted for 85 to 90 percent of expenditures on tobacco products by the mid-1950's and early 1960's. Expenditures on cigarettes tripled from 1970 to 1986, while cigar expenditures declined 96 percent. Consumer spending on all tobacco products fell from 1.7 percent of disposable income in 1970 to 1.1 percent in 1986.

Rising expenditures on cigarettes reflect a historical increase in consumption, despite the decline since 1981, and higher prices. U.S. cigarette consumption continued to increase from 1950 to 1981, when it peaked at 640 billion. Consumption declined to 584 billion in 1986. The smoking-age population (18 years and over) rose by 32 percent from 1970 to 1986, and disposable income (at current prices) increased 36 percent.

Retail prices for cigarettes increased substantially over the past 40 years because of rising wholesale prices and hikes in State and local taxes. Wholesale prices of standard-size nonfilter cigarettes (excluding excise taxes) doubled from 1980 to 1986, and has more than tripled since 1970.

Acreage and Production Trends

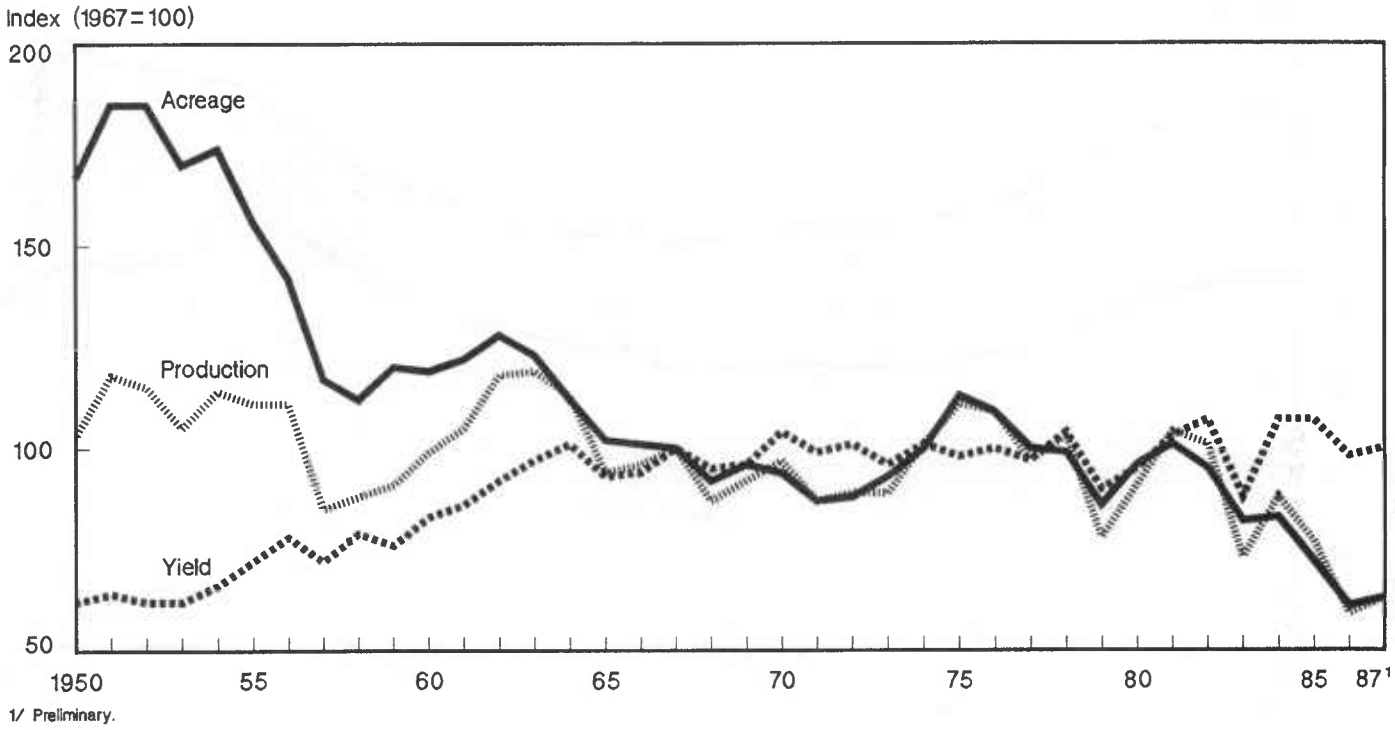
Planted acres and production follow similar trends as those of consumption of tobacco products—rising, peaking, and then declining. But acreage and production are also based on Government programs.

Acreage

Area planted to tobacco reached 2.12 million acres in 1930 to meet demand from increased cigarette consumption (fig. 8). This record acreage was nearly twice as large as that harvested in the early 1960's and more than 2.5 times the current acreage.

Figure 8

Tobacco acreage, yield, and production



1/ Preliminary.

USDA photo

Field of topped tobacco. Tops are removed 2 to 4 weeks before harvesting. Topping increases the thickness and improves the quality of the leaves. An air-curing barn is in the background.

Tobacco acreage remained relatively high through the mid-1950's, but declined steadily during the late 1950's and 1960's. Acreage expanded from 1972 to 1975, but has since declined steadily.

Tobacco yields rose considerably from the 1940's to 1965. Yields then stabilized after changes in the Government program regulating tobacco production.

Poundage quotas or acreage allotments apply for most kinds of tobacco. A poundage quota specifies the quantity of tobacco a producer can sell at a guaranteed price. Allotments are acreage constraints, with no production limitations, used in conjunction with price supports to provide the market with stable supplies and prices. Quotas and allotments are assigned to parcels of land. More than one quota or allotment can be combined on a farm through ownership, rental, and leasing arrangements (where leasing is permitted). The average size of a tobacco quota varies by class and type of tobacco. Some types, about 4 percent of total production, are not under production controls.

Controls for flue-cured (the dominant type of tobacco) changed from acreage to acreage-poundage controls, with poundage becoming the effective constraint on production. Controls on burley production shifted from acres to pounds. For example, the U.S. average yield rose from 1,292 pounds per acre in 1950–54 to 1,959 in 1965–69 (table 10). The average for 1975–79 was only 48 pounds higher at 2,007 pounds per acre. The

Table 10—U.S. tobacco acreage, yield, production, stocks, supply, disappearance, and price

Crop year [1]	Area planted	Yield per acre	Production	Stocks [1]	Supply	Disappearance [1]			Average price to growers
						Total	Domestic	Exports	
	1,000 acres	*Pounds*	*Million pounds*						*Cents per pound*
1950	1,599	1,269	2,030	3,089	5,119	1,975	1,452	523	51.7
1951	1,780	1,310	2,332	3,144	5,476	2,072	1,488	584	51.1
1952	1,772	1,273	2,256	3,404	5,660	2,055	1,557	498	49.9
1953	1,633	1,261	2,059	3,605	5,664	1,995	1,480	515	52.3
1954	1,668	1,346	2,244	3,669	5,912	1,935	1,419	516	51.1
1955	1,495	1,466	2,193	3,977	6,170	2,058	1,410	648	53.2
1956	1,364	1,596	2,176	4,112	6,288	1,929	1,373	556	53.7
1957	1,122	1,486	1,668	4,359	6,027	1,921	1,393	528	56.1
1958	1,078	1,611	1,738	4,106	5,843	1,923	1,388	535	59.9
1959	1,153	1,558	1,796	3,920	5,716	1,928	1,425	503	58.3
1960	1,142	1,703	1,944	3,789	5,733	2,029	1,462	567	60.9
1961	1,174	1,755	2,061	3,704	5,765	2,051	1,461	590	63.8
1962	1,224	1,891	2,315	3,714	6,029	2,004	1,474	530	58.9
1963	1,176	1,994	2,344	4,025	6,369	2,046	1,437	609	57.7
1964	1,078	2,067	2,228	4,323	6,551	2,055	1,506	549	59.2
1965	977	1,898	1,855	4,496	6,351	2,000	1,462	538	65.1
1966	972	1,939	1,885	4,351	6,236	2,098	1,392	704	66.5
1967	960	2,050	1,968	4,140	6,108	2,020	1,372	648	66.8
1968	879	1,945	1,710	4,088[2]	5,798	1,975	1,352	623	69.5
1969	918	1,964	1,803	3,823	5,626	1,949	1,308	640	71.8
1970	898	2,122	1,906	3,678	5,584	1,919	1,278	639	72.9
1971	839	2,034	1,705	3,667[2]	5,372	1,883	1,312	571	78.6
1972	842	2,076	1,749	3,488[2]	5,237	1,951	1,312	639	83.0
1973	889	1,963	1,746	3,289[2]	5,035	2,081	1,348	732	90.0
1974	963	2,067	1,994	2,948[2]	4,942	1,937	1,284	653	108.6
1975	1,083	2,015	2,182	3,003[2]	5,185	1,941	1,286	655	102.6
1976	1,045	2,045	2,136	3,297	5,433	1,907	1,229	678	112.5
1977	958	1,997	1,913	3,540[2]	5,452	1,895	1,202	693	118.6
1978	948	2,135	2,054	3,560[2]	5,584	1,955	1,190	765	132.4
1979	827	1,845	1,527	3,601[2]	5,128	1,869	1,175	694	141.1
1980	921	1,940	1,786	3,259	5,045	1,759	1,109	649	152.3
1981	976	2,114	2,064	3,286[2]	5,350	1,762	1,065	697	170.6
1982	913	2,185	1,994	3,588[2]	5,582	1,662	1,034	628	176.4
1983	789	1,811	1,429	3,920	5,349	1,532	936	596	174.6
1984	792	2,183	1,728	3,817	5,545	1,621	955	666	180.6
1985	688	2,196	1,511	3,924[2]	5,436	1,620	1,000	620	164.5
1986 [3]	582	1,998	1,163	3,815[2]	4,978	1,572	981	591	152.5
1987 [4]	602	2,045	1,230	3,406[2]	4,636	NA	NA	NA	NA

NA = Not available. [1] Year beginning July 1 for flue-cured and cigar wrapper and October 1 for all other types. [2] Includes tobacco carried over on farms. [3] Preliminary. [4] Estimated.

Source: (*12*).

average tobacco farm operated about 5.2 acres (*16*). Average acreage per tobacco farm varied from 1.4 acres in West Virginia to 28.2 acres in Connecticut in 1982 (table 11).

Table 11—Number of farms, acres, and average acres of tobacco, 1982

State	Farms	Tobacco acreage	
		Total	Average per farm
	Number	*Acres*	
Alabama	48	395	8.2
Arkansas	1	NA	NA
Connecticut	78	2,198	28.2
Florida	581	8,208	14.1
Georgia	3,005	44,749	14.9
Indiana	4,061	8,819	2.2
Kansas	13	30	2.3
Kentucky	74,166	256,619	3.5
Louisiana	6	24	4.0
Maryland	2,489	24,840	10.0
Massachusetts	46	352	7.7
Minnesota	4	27	6.8
Missouri	692	2,996	4.3
North Carolina	29,489	337,696	11.4
Ohio	4,846	14,023	2.9
Pennsylvania	1,939	11,793	6.1
South Carolina	3,530	60,017	17.0
Tennessee	36,515	82,390	2.3
Virginia	13,485	64,005	4.7
West Virginia	1,314	1,877	1.4
Wisconsin	2,832	10,595	3.7
United States	179,140	931,653	5.2

NA = Not available.
Source: (*16*).

Production

Production of tobacco is localized, and distinctive characteristics set each type apart from the other types. The various tobacco products require leaf of different characteristics. Therefore, a standard system of classification by the U.S. Department of Agriculture (USDA) designates six major classes of U.S. tobacco (table 12).

The first three classes (flue-, air-, and fire-cured) are named on the basis of the method used in curing. The last three classes (filler, binder, and wrapper) which are all cigar leaf, are named according to their traditional use in cigars. However, wrapper tobacco may be used for all three purposes, and some grades from any type may go into loose-leaf chewing. Most cigar tobaccos are air-cured.

Each class is comprised of two or more different types. Individual types of flue-cured tobacco are no

Table 12—Types of tobacco grown in the United States

Class	Type		Major producing States
	Number	Name	
Flue-cured	11	Old and middle belt	VA and NC
	12	Eastern belt	NC
	13	Border belt	SC and NC
	14	Georgia and Florida belt	GA, FL, and AL
Fire-cured	21	Virginia	VA
	22	Eastern district	KY and TN
	23	Western district	KY and TN
Air-cured:			
Light	31	Burley	KY, TN, and OH IN, VA, and NC WV and MO
	32	Southern Maryland	MD and PA
Dark	35	One sucker	KY and TN
	36	Green river	KY
	37	Virginia sun-cured	VA
Cigar filler	41	Pennsylvania Seedleaf	PA
	42–44	Ohio filler	OH
	46	Puerto Rican filler	PR
Cigar binder	51	Connecticut Broadleaf	CT
	52	Connecticut Havana Seed	CT and MA
	54	Southern Wisconsin	WI
	55	Northern Wisconsin	WI
Cigar wrapper	61	Connecticut shade	CT and MA
Miscellaneous	72	Perique	LA

Source: (*10*).

longer easily identified; and the type designation usually refers only to a marketing area. Each class is further divided into grades. These grades are related to stalk position, quality, color, and other characteristics of the leaf.

Flue-Cured Tobacco. Flue-cured tobacco (class 1) made up 55 percent of all tobacco produced in the United States in 1986, compared with 52 percent in 1985. While it accounted for 50 percent in 1984, it accounted for 58 percent of total production in 1983, closer to the historic level. The name comes from the flues (metal, brick, or stone) of the heating apparatus originally used in curing barns. This tobacco is yellow to reddish-orange and has a thin to medium body and a mild flavor.

Flue-cured tobacco is used mainly in cigarettes (about 95 percent of its use) and sometimes in smoking and chewing tobacco.

In 1979, flue-cured tobacco was grown on about 45,000 farms in North Carolina, Virginia, South Carolina, Georgia, Florida, and Alabama (*5*). Farmers in these States grew an average of 13.8 acres of tobacco, up from 9.5 acres in 1972 (*5*). Farm sizes have expanded as harvest has become more mechanized. The typical farm acquired the tobacco acreage from four quotas through renting and/or leasing arrangements.

Quotas for flue-cured tobacco are assigned to specific farms. Besides owning and renting land with a tobacco quota, operators could lease their tobacco quota to their owned or rented land before 1987. Leasing was prohibited beginning in 1987 (except that limited lease and transfer authority for disasters was reinstated in 1988). The lessor could transfer the quota from the leasees' farm to his or her owned or rented farm. Only 16 percent of farm operators owned the entire tobacco quota they produced in 1979, about 27 percent rented all their quota, and the remaining 57 percent combined owning, renting, and leasing and transferring.

Flue-cured tobacco farms averaged 114 acres of cropland. About 70 percent of the farms also grew corn and 55 percent grew soybeans. A little more than half the farms produced livestock.

Producers earned an average of 79 percent of their gross farm income from flue-cured tobacco in 1979. Fifty-two percent of the farm households reported one or more family members working away from the farm in 1979.

Production of flue-cured tobacco has varied considerably. The United States produced a billion pounds of flue-cured tobacco in 1982. Production declined to 818 million pounds in 1983 because of the drought, but reached 865 million pounds in 1984 before falling to 800 million pounds in 1985 and 645 million in 1986. Production for 1978–82 was about 20 percent lower than during 1950–54 (app. table 1).

Disappearance, especially domestic, has also fallen since 1950. (Disappearance indicates that the leaf has been removed from supplies: the tobacco was used in products, exported, or wasted.) Total disappearance in 1985–86 was 13 percent lower than in 1978–82, which was 12 percent below that of 1950–54. Domestic disappearance dropped 32 percent from 1950–54 to 1978–82 (fig. 9). Manufacturers substituted other types, together with imported flue-cured, for domestic flue-cured.

Light Air-Cured Tobacco. Light air-cured tobacco includes burley and Maryland types. About 95 percent of light air-cured production is burley. Both types are used mainly in cigarettes.

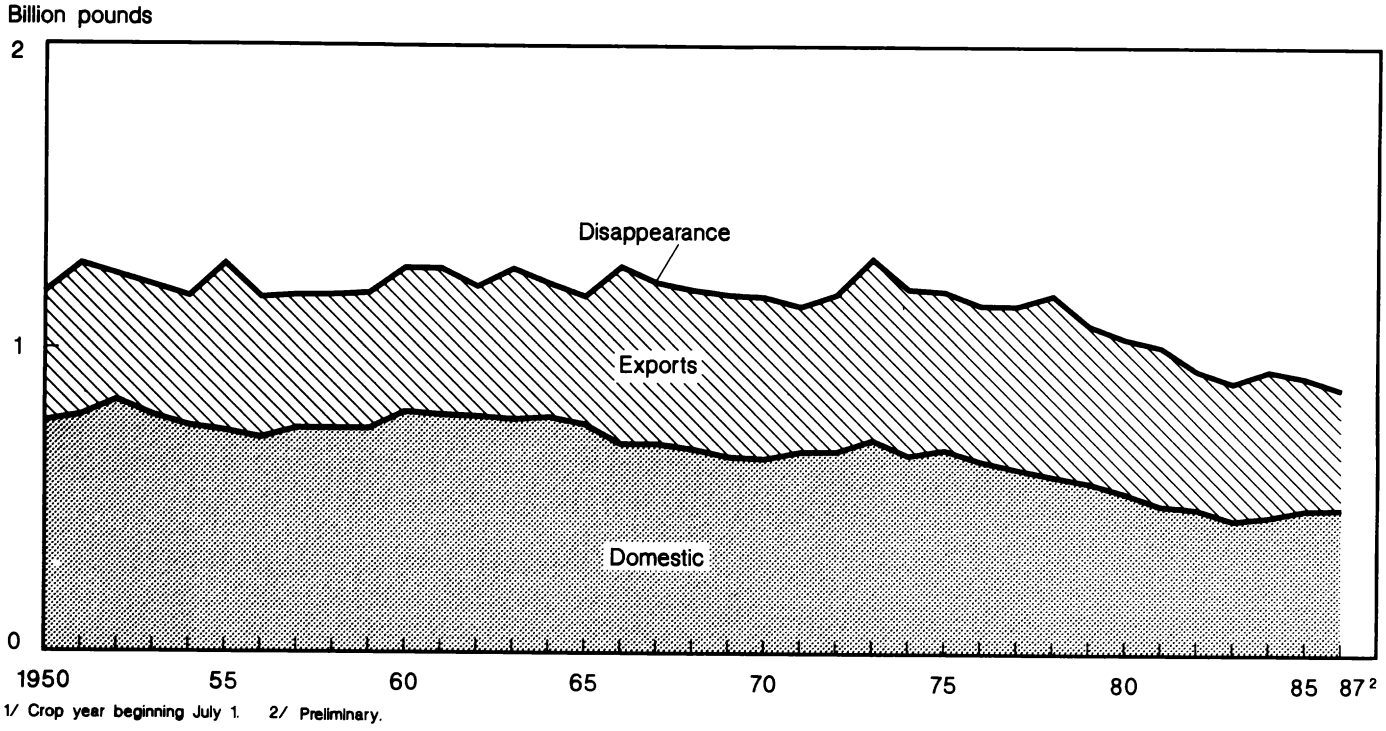
Burley tobacco (class 3) accounted for 35 percent of all tobacco produced in the United States in 1986, compared with 40 percent in 1985 and 42 percent in 1984. (The 1983 share dropped to 33 percent because extreme drought lowered many burley yields.) Burley is normally cured without supplementary heat. With 13 States growing burley, it is the most widely grown tobacco across the United States and is the second-largest tobacco crop (behind flue-cured).

Over 90 percent of burley is used in cigarettes. Burley's flavor and aroma make it a popular tobacco for cigarette blends. Other uses include pipe tobacco and plug and twist chewing.

About 125,000 farms grew burley tobacco in 1982 (*16*). Most burley is produced in Kentucky and Tennessee, but Indiana, Ohio, Missouri, West Virginia, Virginia, and North Carolina are also important growers. An average of 2.4 acres of burley grows per farm in the five most important growing areas, representing about half the total production (*6*). An average of about 1.5 quotas per farm was used to produce and market tobacco. Over 67 percent of the growers produced 2 acres or fewer of tobacco; about 17 percent produced fewer than 6 acres of tobacco.

Burley tobacco farms averaged 86 acres of land, but half of that was used for other crops or pasture. Sixty-three percent of burley growers produced livestock.

Figure 9
Use of flue-cured tobacco[1]



1/ Crop year beginning July 1. 2/ Preliminary.

Nearly 40 percent of the burley farm operators owned the entire tobacco quota they produced in 1976. Another 30 percent rented all their quota. About 25 percent leased quotas.

Sixty-eight percent of the burley farms reported one or more members working away from the farm in 1976: 55 percent of the operators and 26 percent of the spouses worked elsewhere. Nearly half of farm sales comes from tobacco. The remainder is evenly distributed among other crops and livestock.

The United States produced a record 800 million pounds of burley tobacco (about 33 million pounds went unsold because of insufficient quota) in 1982. Production dropped to 470 million pounds in 1983 because of substantially reduced yields and a smaller quota, but jumped to 732 million pounds in 1984. Production fell sharply in 1985 to 573 million pounds and declined again to 440 million pounds in 1986. Marketings during 1978–82 rose about 4 percent over 1950–54. Until recently, burley production remained steady despite reduced use of tobacco per cigarette and increased burley imports.

Burley tobacco disappearance rose 14 percent between 1950–54 and 1978–82 (app. table 2) from exports; domestic disappearance declined 4 percent (fig. 10). The decline in domestic consumption was modest through the 1970's, but fell 11 percent between 1979 and 1982. Domestic disappearance rose during the 1950's and continued to rise, reaching a peak during 1964–67.

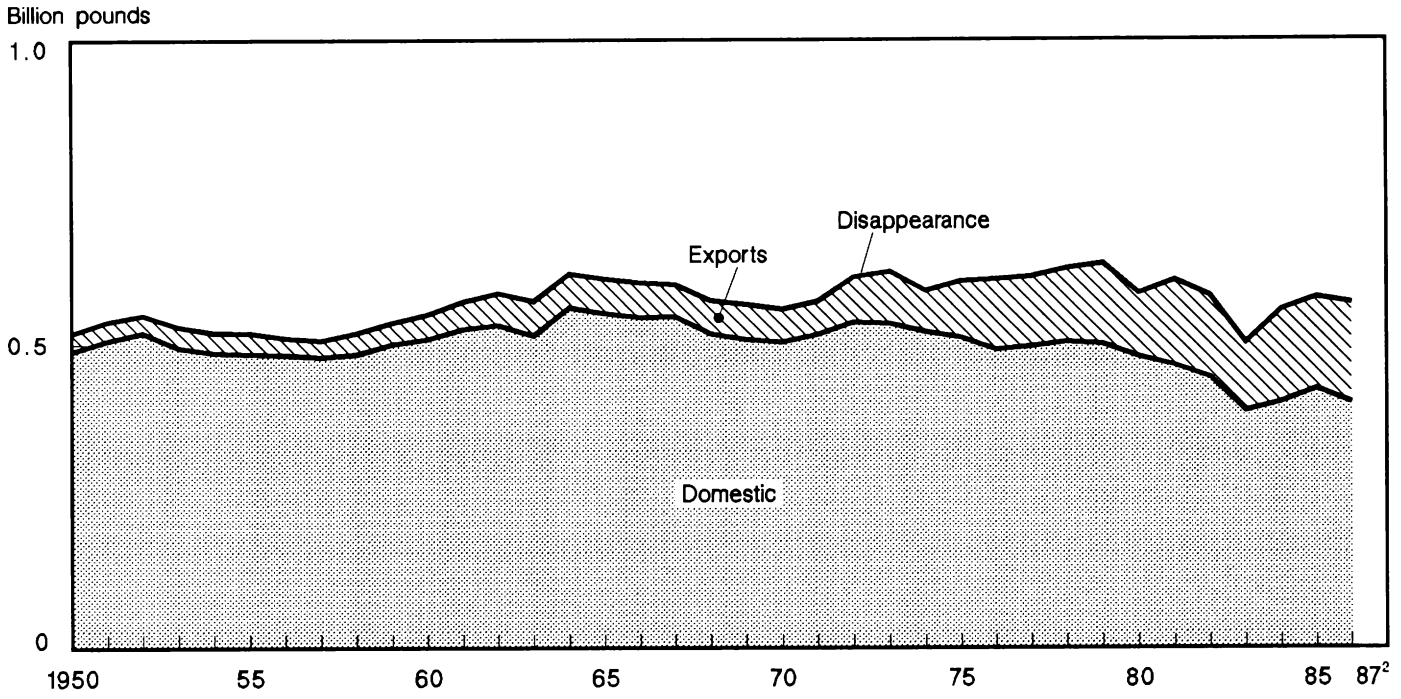
Maryland tobacco, also a light air-cured type, is usually considered to have ideal burning qualities for use in cigarette blends. Almost all of it is used in cigarettes.

Until recently, essentially all Maryland tobacco was grown in Maryland. North Carolina, South Carolina, and Virginia produced a considerable amount of Maryland tobacco in 1981. But the Agriculture and Food Act of 1981 prohibits and penalizes quota areas for growing and marketing Maryland tobacco. However, quotas are not applicable to Pennsylvania filler tobacco. Prices of this type are low, so some growers in the Pennsylvania filler production area are changing to production of Maryland tobacco.

About 2,480 farms in Maryland, each averaging 10 acres of tobacco, grew Maryland tobacco in 1982. Quotas and allotments have not applied there since 1965, so growers operate unrestrained.

The United States produced 33 million pounds of Maryland tobacco in 1985, but production fell to 28 million in 1986 (app. table 3). Production during

Figure 10
Use of burley tobacco[1]



1/ Crop year beginning October 1. 2/ Preliminary.

1978–82 was only 6 percent below that of 1950–54. However, production in 1976–80 was down about a third. Recent production in nontraditional areas brought total production in the early 1980's back to levels of the early 1950's.

Disappearance of Maryland tobacco has usually varied from 30 to 40 million pounds. Availability of Maryland, together with the quantities of burley available, influence Maryland use. Use rebounded in 1984 and 1985 as supplies became more plentiful (app. table 3).

Fire-Cured Tobacco. Fire-cured tobacco (class 2) is light to dark-brown and has a medium to heavy body and a strong flavor. Its name originates from the smoky flavor and aroma received from firing it over open fires in the curing barns. Fire-cured tobacco is used for making snuff, roll and plug chewing tobacco, strong cigars, and heavy smoking tobacco.

Kentucky, Tennessee, and Virginia grow fire-cured tobacco. Kentucky and Tennessee grow types 22 and 23, and Virginia grows type 21.

The number of fire-cured producers is not known. In 1986, there were 17,755 dark fire-cured allotments in the United States (13,490 of types 22 and 23 and 4,265 of type 21) (table 13). But the number of producers is probably considerably smaller than the number of allotments because many growers consolidate more than one allotment into a farm, and some allotments are not grown.

The United States produced 50 million pounds of fire-cured tobacco in 1985: 45.5 million pounds in Kentucky and Tennessee and 4.5 million in Virginia. Production fell to 41 million pounds in 1986. Production of types 22 and 23 varied considerably, but some decline has occurred since 1963 (app. table 4). Production in 1978–82 was 11 percent lower than in 1950–54. A more pronounced decline occurred for type 21, which fell by more than half (app. table 5).

Disappearance of fire-cured tobacco fell as consumption declined for most of its products. Type 21 disappearance declined more rapidly than did types 22 and 23 (perhaps because type 21 is used more for dry snuff, whose consumption has declined for some time). Total disappearance of types 22 and 23 declined 28 percent between 1950–54 and 1978–82. Type 21 disappearance declined 54 percent. Types 22 and 23 recently held steady because of hikes in moist snuff consumption and strong export demand.

Dark Air-Cured. Dark air-cured tobacco (class 3) is light to medium brown and has a medium to heavy body. It is used to manufacture the same products as

fire-cured (mainly chewing tobacco and snuff) and, to some extent, smoking tobacco and cigars.

Kentucky, Tennessee, and Virginia grow dark air-cured tobacco. Kentucky and Tennessee grow type 35, Kentucky grows type 36, and Virginia grows type 37.

The number of dark air-cured producers is not known. There were 18,901 dark air-cured allotments in 1986: 18,310 of types 35 and 36 and 591 of type 37 (table 13).

The United States produced 15.2 million pounds of dark air-cured tobacco in 1985, but production fell to 10.9 million in 1986 (app. tables 6 and 7). Production and disappearance of types 35 and 36 declined about a third from 1950–54 to 1978–82. Production and disappearance of type 37 declined even more (app. table 7).

Cigar Filler Tobacco. Cigar filler tobacco (class 4) has a medium to heavy body and is mainly used in the core, or body, of the cigar. The main factors to be considered for this purpose are flavor, aroma, and burning quality.

Pennsylvania grew about 85 percent of all cigar filler tobacco in 1982. Fourteen percent grew in Ohio and 1 percent grew in Puerto Rico (Puerto Rico's share has steadily declined from 42 percent in 1964) (app. tables 8–10). In 1982, 1,939 farms in Pennsylvania produced an average of 6.1 acres of tobacco, essentially all cigar filler.

The slide in filler production and disappearance parallels the decline in cigar consumption. Production and disappearance are less than half the level of 30 years ago; Puerto Rico's product has declined many times over.

Cigar Binder Tobacco. Loose-leaf chewing tobacco is the principal outlet for cigar binder tobacco. Cigar binders (class 5) were originally used for binding the bunched filler into the form and shape of the cigar. Natural leaf binders must have good burning quality, aroma, and elasticity. However, practically all cigars now use a reconstituted tobacco sheet for the inner binder.

In 1982, about 2,800 farms in Wisconsin each grew an average of 3.7 acres of tobacco (table 11). Wisconsin grew about 85 percent of cigar binder in 1982. The remaining cigar binder grew in Massachusetts and Connecticut (app. table 11).

Production and use of Wisconsin binder tobacco has remained relatively stable since the late 1950's. Use of binder for loose-leaf chewing (a product with expanding consumption until recently) more than offset the decline in demand for cigars (app. table 12). However, the production and consumption of the higher priced Connecticut binder has declined markedly (app. table 11). Current production and consumption of Connecticut binder are only about 10 percent of their levels of 35 years ago.

Cigar Wrapper Tobacco. Cigar wrapper tobacco (class 6) is used primarily for the outside cover on cigars, and leaves must be elastic, free of injury, uniform in color, and have good burning qualities. They also should be very thin, smooth, and of fine quality. To produce leaves of such qualities, producers must protect the leaves against the sun and weather extremes. A frame covered with cheesecloth encloses many of the fields. This cloth screening filters the sunlight and creates an artificial environment favorable to the specialized product. These types of tobacco, commonly called shade-grown, describe this method of cultivation.

Table 13—U.S. tobacco allotments, by kinds of tobacco, 1986

Tobacco types	Allotments	Acreage allotted	Pounds allotted	Average size of allotment
	Number	*Acres*	*Million pounds*	*Acres*
Flue-cured (11–14) [1]	150,197	351,997	699.4	4,657[2]
Burley (31) [3]	314,063	—	488.2	1,554[2]
VA fire-cured (21)	4,265	7,611	—	1.78
KY, TN fire-cured (22–23)	13,490	19,701	—	1.46
Dark air-cured (35–36)	18,310	6,181	—	.34
VA sun-cured (37)	591	1,027	—	1.74
Cigar filler and binder (42–44, 53–55)	5,439	9,416	—	1.73
Total	506,355	395,933	1,187.6	—

— = Not applicable.
[1] Acreage and poundage controls with national average yield goal of 1,989 pounds per acre. [2] Pounds. [3] Poundage quota.
Source: (*12*).

Tobacco Institute photo

A field of shade-grown wrapper tobacco is covered with cheesecloth. Leaves are pulled several times, beginning at the bottom of the plant. Shade-grown is the only tobacco harvested without topping.

Expensive cigars are still made with natural wrapper, but wrapping cigars in reconstituted tobacco sheets is increasing. Because of reduced cigar consumption and reduced use of natural wrapper, production and disappearance of wrapper leaf has declined dramatically (app. table 13). Connecticut and Massachusetts now produce all wrapper leaf (Georgia and Florida have not produced wrapper since 1978).

Cigar wrapper is grown under many kinds of arrangements. Sometimes the buyer rents the land, hires the owner as foreman, and the owner grows the tobacco for the buyer's account. Or the buyer and the farmer each contribute certain specified items of cost and share in the proceeds related to their contribution. Some manufacturers grow tobacco on their own land. Cigar wrapper operations are the largest of all tobacco farms.

U.S. cigar production has declined steadily since 1965 (app. table 14). Both domestic disappearance and exports have dropped in half since 1965. Although the rate of decline is expected to slow, the fall may continue through the 1980's.

Culture

The various types of tobacco are usually grown in well-defined areas where the soil and climate yield a product with properties desired by domestic manufacturers and importers of U.S. tobacco. Many cultural practices are similar among regions, but many also vary depending on the type of leaf desired by the trade. This section reviews tobacco seeding, soils and fertilization, transplanting, cultivating, and topping.

Seeding

Tobacco plants are grown in seedbeds of sterilized soil, covered either with cheesecloth, plastic, or other synthetic material. Tobacco seeds are extremely small; 1 ounce contains from 300,000 to 450,000 seeds. A sixth (0.17) to an eighth (0.12) of an ounce of seed is enough to sow 100 square yards and will furnish enough plants to set 1–4 acres in the field.

Seeding may be done with a mechanical seeder or by mixing the seed with clean sand, pulverized fertilizer, ashes, or lime before sowing. Germination (sprouting) begins when the temperature reaches about 65°F (18°C). The plants are ready for transplanting to the fields when they have developed six to eight leaves and are 6 to 8 inches high.

Soils and Fertilization

Proper fertilization is an important factor in producing a specific kind of leaf. Plant development is seriously affected if the soil lacks any one of the chemical elements necessary for its growth.

Various tobaccos are produced on different soils. Flue-cured grows on sandy and gravelly soils of marine origin and loam and on sandy loam soils from underlying granite. Burley grows on silt and clay loam soils. Other types are grown on soils suited to their particular needs.

Transplanting

Transplanting occurs from late March to early May in Georgia, Florida, South Carolina, and eastern North Carolina, and in May and June in most other areas. The final field is prepared by repeated disking and rolling or harrowing, and then smoothing and furrowing the surface soil just before the plants are transplanted. Producers transplant tobacco in level fields or on ridges. Ridging is the prevailing practice for flue-cured and, to some extent, for the dark types. The level culture is chiefly used for burley, Maryland, and the cigar types.

A power-drawn transplanter or setter usually transplants the tobacco seedlings. These machines carry two, four, or eight persons. The riders alternate placing or guiding the plants into a mechanism that places the plants at the proper intervals in rows. The machine then opens the furrow, dumps a measured quantity of water, and draws the soil around the roots of the plant.

Spacing of plants in the field varies widely among types and classes. The width between rows averages

USDA photo

Transplanting flue-cured tobacco in ridged rows. This two-row transplanter requires four people on the machine.

Photo by Charles Buchanan

Leaves pulled from the stalk by hand are taken to the barn where they are looped on sticks and hung in a curing barn.

3–4 feet, with the plants 12–24 inches apart in the rows. Tobacco farms grow from 5,000 to 11,000 plants per acre.

Cultivating

The cultivation methods for tobacco are similar to those for other row crops, but keeping the soil loose and controlling weeds and grasses are the main practices. Soils must be well drained and aired. Chemical herbicides now widely control grasses.

Topping

When the plant begins to produce flowers, the plant must be topped by breaking or cutting-off the upper portion of the plant, at about the third leaf below the flower. Most topping is still done by hand, but some large farms use machines.

Topping permits the remaining leaves to draw additional nutrients and thus become larger, thicker, and heavier. Upon removing the flower, buds or "suckers" begin to develop and grow in the leaf axils in an attempt to replace the top bud. Chemicals usually stop these buds or suckers from developing. The time and height of topping can significantly affect the yield and quality of the cured leaf.

The number of leaves remaining on the plant after topping varies from 18 to 26 on the flue-cured, Maryland, burley, and cigar types, and about 14 on the fire-cured and dark air-cured types.

Harvesting and Curing

Tobacco is a labor-intensive crop to produce. In order to bring the product to market, farmers must invest their time and labor into the specialized harvesting and curing processes.

The Process

When tobacco matures, generally 60–90 days after transplanting, the crop is harvested either by priming (picking individual leaves from the stalk as they ripen) or stalk-cutting (cutting the entire plant or stalk). Hand labor still largely harvests tobacco. However, mechanical harvesters now harvest about 25 percent of the flue-cured acreage. Other laborsaving changes help harvest and prepare tobacco for market.

Producers harvest flue-cured, cigar wrapper, and most Puerto Rican filler tobaccos with the priming method. Beginning at the bottom of the plant, primers remove three to eight leaves from the stalk at a time. Priming occurs at regular intervals to get all the leaves at the correct stage of ripeness.

It took about 172 hours of labor per acre to produce flue-cured tobacco in 1979 and about 425 hours per acre in 1965 (*5*). The reduction is attributed to more efficient preharvest operations, a change to laborsaving harvesting devices in the 1970's such as bulk barns and mechanical harvesters, and a switch to untied leaf sales in the 1960's. Harvest labor averages about 70 percent of the total labor used to produce flue-cured tobacco. But harvest labor use varies widely primarily because different harvest methods are used.

Many methods can be used to harvest flue-cured tobacco. These differ primarily on three counts: how the tobacco leaves are pulled from the stalk, how and where they are prepared for curing, and what type of curing barn is used.

- Workers (primers) walk down the tobacco rows and break off the leaves.

- Workers ride over the field on tractor-drawn or self-propelled machines (priming-aids) and break off the tobacco leaves. Most priming aids have four seats for the primers; and four rows are harvested each time the priming aid makes a trip through the field.

- A mechanical harvester strips the leaves from the tobacco stalk by rotating spiraled rubber wipers attached to a movable head. Mechanical harvesters are self-propelled and tractor-drawn, harvest one and two rows, and remove leaves once-over and multipass. Most mechanical harvesters are multipass, which usually remove four to six leaves per plant each trip across the field.

Once harvested, leaves are prepared for curing by tying them on sticks (manually or mechanically), placing them in bulk racks, or putting them in large containers (big boxes). In manual tying, the worker loops twine around the butt ends of tobacco leaves and attaches them to a stick that gets hung in the barn. An automatic tying or sewing machine can mechanically tie, or loop, the leaves. The tobacco leaves and sticks are placed on a moving conveyor belt that passes under a sewing head. Stitches at the butt end then attach the leaves to the stick.

Bulk racks are two-piece steel frames about 50 inches long and 15 inches high. Workers fill the bottom part of the frame with tobacco leaves. They close the rack by forcing steel tines attached to the top part of the frame through the leaves and attach the two parts so that the leaves are held in place.

Steel containers of various dimensions, called big boxes, also hold the tobacco for curing. Some have partitions in the middle. The containers hold the equivalent of 8–20 bulk racks of tobacco. The barn cures 8–22 boxes. Steel rods inserted through the boxes support the leaves.

Flue-cured tobacco is cured in conventional or bulk barns (including box barns). Sticks of tobacco are generally cured in conventional barns, and racks of tobacco are cured in bulk barns. Conventional barns are wooden frame structures that have several layers (tiers) of wooden rails horizontal to the ground for hanging the sticks of tobacco. Bulk barns are compact metal frame structures, generally holding 84–153 racks of tobacco. Bulk barns usually have two or three steel rails, horizontal to the floor, located on the sides of each room. Racks are placed on these steel rails and pushed toward the rear of the barn so that filling will be uniform. Box barns are similar to bulk barns.

Flue-cured tobacco curing barns are completely filled to ensure uniform curing. Heat is applied to produce gradual changes in the leaf, particularly as to color and moisture content. Curing takes place in three stages: yellowing, drying of the leaf, and drying of the stem. In the yellowing stage, the heat is maintained at around 90°–100°F for 24–40 hours. Then, it is increased fairly rapidly to 130°–140°F to dry the leaf and fix the color, which takes 30–36 hours, and then it is gradually raised and maintained at 160°F until the stems dry thoroughly. The whole curing process takes 5–7 days.

This report identifies 23 flue-cured tobacco harvest systems, each by a three-digit code as depicted in table 14. The first digit refers to how the leaves are pulled from the stalk (harvesting), the second to how and where the leaves are prepared for curing, and the third to the type of curing barn.

Labor used to harvest flue-cured tobacco ranged from 36 to 214 hours per acre with the 23 harvest systems described in table 15. Mechanical harvesters and

Table 14—Possible combinations of harvesting methods, curing preparation techniques, and curing methods for flue-cured tobacco farms

Harvesting method	Curing preparation	Curing method
1. Walking primers	1. Hand-loop on sticks at barn	1. Conventional barn
2. Riding primers	2. Hand-loop on sticks in field	2. Bulk or big box barn
3. One-row multipass harvester	3. Machine tie on sticks	
4. Two-row multipass harvester	4. Bulk rack at barn	
5. Once-over harvester	5. Bulk rack in field	
	6. Fill big boxes at barn	
	7. Fill big boxes in field	

Source: (5).

bulk (box) curing significantly lowered labor used for harvesting and curing flue-cured tobacco.

Conventional Barn Systems

Conventional barn harvest systems were used for about 39 percent of the U.S. flue-cured tobacco acreage in 1979, compared with 92 percent in 1972 (*5*). This percentage may have been as low as 10–15 in 1986 because producers continue to adopt laborsaving harvest methods to reduce costs.

System 111. Workers remove the tobacco leaves from the stalk, placing them on sleds or trailers. Once at the barn, workers hand-loop leaves onto sticks and then hang the sticks in conventional curing barns. Thirteen percent of the flue-cured tobacco farms used this system as their major harvest system in 1979 (table 15). However, this method harvested only 4 percent of all tobacco acreage in 1979, compared with 19 percent in 1972 (*5*). Small farms primarily use this system. These farms apparently have not switched to other harvest systems because of the substantial investment required and because many have enough family labor to perform much of the harvest.

System 131. This is similar to system 111, except that machines tie the leaves to sticks. In 1979, 35 percent of the farms used this system to harvest 24 percent of the tobacco acreage. This system harvested 41 percent of the acreage in 1972.

Systems 211, 221, and 231. In each of these harvest systems, primers ride on priming aids. In system 211, the tobacco leaves are hand-looped on sticks at the barn; in system 221, the hand-looping is done on the priming aid in the field; and in system 231, the tobacco leaves are taken to the barn and machine-

Table 15—Harvest labor use on flue-cured tobacco farms in the study area, by harvest system, 1979 [1]

Harvest system [2]	Labor use	
	Per acre	Per 100 pounds
	Hours	
Manual harvesting, conventional barns:		
Walking primers—		
111 Hand loopers	214.2	13.06
131 Tying machine	157.5	8.97
Riding primers—		
211 Barn hand loopers	204.9	9.22
221 Riding hand loopers	166.0	8.57
231 Tying machine	158.5	8.09
Manual harvesting, bulk and big box barns:		
Walking primers—		
142 Rack at barn	97.5	5.29
152 Rack in field	102.5	5.58
162 Fill boxes at barn	95.1	5.34
172 Fill boxes in field	99.5	5.02
Riding primers—		
242 Rack at barn	114.4	6.00
252 Rack in field	98.9	4.95
262 Fill boxes at barn	125.4	5.25
272 Fill boxes in field	116.5	6.14
Mechanical harvesting, bulk and big box barns:		
One-row mechanical harvester—		
342 Rack at barn	65.5	3.52
352 Rack in field	84.5	4.76
362 Fill boxes at barn	52.8	2.91
372 Fill boxes in field	51.0	2.89
Two-row mechanical harvester—		
442 Rack at barn	51.8	2.57
452 Rack in field	61.5	3.58
462 Fill boxes at barn	59.9	3.40
472 Fill boxes in field	49.7	2.85
Once-over harvester—		
542 Rack at barn	55.7	2.65
572 Fill boxes in field	35.9	1.95
Average, all systems	117.8	6.26

[1] Harvest labor is the labor used for all harvest tasks beginning with priming of leaves up to and including preparing for market. [2] Codes refer to the harvest systems described in the text and in table 14.
Source: (*5*).

tied on sticks. All three systems use conventional curing barns. About 15 percent of the flue-cured farms used one of these three systems in 1979. These systems harvested only 11 percent of the 1979 acreage for all tobacco, compared with 32 percent in 1972.

Bulk Barn Systems

A bulk barn harvest system was the major harvest system for 37 percent of the flue-cured growers in 1979. Bulk barns cured 61 percent of the flue-cured acreage in 1979, compared with 8 percent in 1972.

Systems 142 and 152. These systems are similar in that walking primers remove the leaves from the stalk and cure the leaves in bulk barns. But racking is done at the barn with system 142, while racking is done in the field with system 152. Ten percent of the producers used the 142 method as their major harvest system; 3 percent used the 152 method. System 142 harvested 17 percent of the 1979 flue-cured acreage; system 152 harvested 3 percent. Acreage harvested with these two systems increased from 4 percent in 1972 to 20 percent in 1979.

Systems 162 and 172. These systems also use walking primers, but cure the tobacco in big box barns. Workers fill the boxes at the barn with system 162 and in the field with system 172. These systems were not used in 1972, but harvested 2 percent of the 1979 acreage.

Systems 242 and 252. These systems differ from systems 142 and 152 in that they require priming aids. Bulk racking is done at the barn with system 242, and in the field with system 252. Twelve percent of the farms used these as their major harvest system in 1979. Eighteen percent of the tobacco acreage was harvested with these systems in 1979, compared with 4 percent in 1972.

Systems 262 and 272. These systems differ from 162 and 172 because they require priming aids. These systems were not yet in use in 1972, and harvested only 1 percent of the acreage in 1979.

Systems 342, 352, 362, and 372. These harvest systems use one-row, multipass mechanical harvesters to remove the leaves from the plant. Workers rack the leaves at the barn with the most popular one-row harvester systems. Other systems require racking in the field and filling boxes in the field or at the barn. Bulk or big box barns cure the tobacco. One-row multipass machines harvested 13 percent of the 1979 flue-cured acreage and only about 1 percent in 1972.

Systems 442, 452, 462, and 472. The only difference between these systems and the mechanical systems described above is that the machines are two-row harvesters. Two-row systems harvested about 5 percent of the 1979 tobacco acreage.

Systems 542 and 572. These systems require one-row, once-over harvesters which harvest all the leaves in one trip through the field. Workers rack the leaves at the barn or place the leaves in big boxes in the field. These methods harvested only 1 percent of the 1979 acreage and a negligible amount in 1972.

USDA photo

Traditional or conventional wooden flue-curing barn. These barns are being replaced by the more efficient bulk barns shown at right.

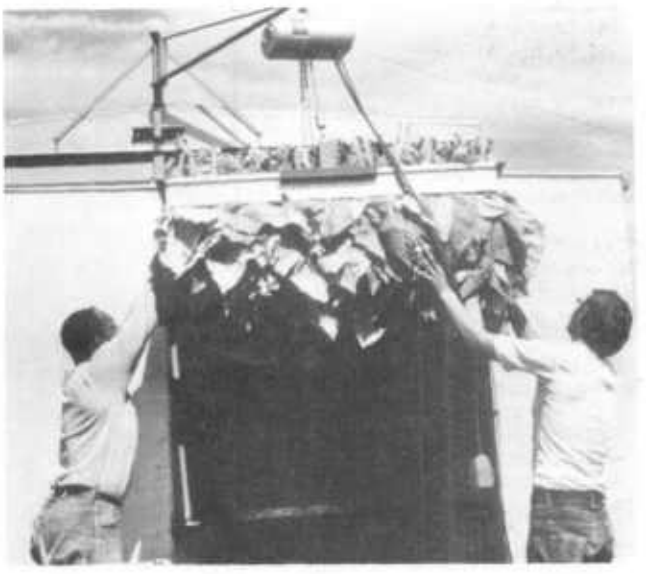


Photo by Verner Grise

Rack filled with flue-cured tobacco leaves being placed in a bulk curing barn. A chain hoist lifts the filled rack so it can be slid into the barn on steel rails along the sides of the barn.

USDA photo

Harvesting air-cured tobacco. The stalk is cut with a hatchet or knife. Five or six stalks are then speared onto 4-1/2 foot sticks.

USDA photo by E.W. Cole

Sticks of harvested tobacco hang on rails or poles for air-curing in the barn. Some boards on hinges on the barn have been opened for ventilation.

Stalk-Cut Tobaccos

Cutting the entire stalk or plant is the method used to harvest burley, Maryland, fire- and dark air-cured, and most cigar leaf tobaccos. Using a hatchet or knife, workers cut the entire plant close to the ground, and usually harvest all plants in the field at the same time. Five or six stalks are speared onto 4.5-foot sticks and are left in the field for a day or so to wilt so they will lose water and not break in handling.

Burley, Maryland, dark air-cured, and most cigar tobaccos are air-cured, primarily under natural weather conditions. But heat may be used to some extent. Barns used for air-curing tobacco are 30–40 feet wide and up to 300 feet long. Boards (usually vertical) hang on the outside of the barn with about every third board hung on hinges, for ventilation.

Barns are usually equipped with driveways and doors large enough to allow a wagon or truck to pass through easily. The interior consists of a framework of poles for supporting the laths that hold the tobacco. Spaces between the poles are called tiers. Barns are built three to four tiers high. The first tier of poles is at least 9 feet from the ground so the tobacco on the bottom tier clears the ground by at least 3 feet. The other tiers are 4–5 feet apart.

The time required for completely curing stalk-cut tobacco varies, depending on weather conditions, from 5 to 8 weeks for cigar types, and from 4 to 6 weeks for burley, Maryland, and the dark air-cured types.

Fire-Curing

The old fire-curing barns were built from logs, reinforced with mud-filled cracks. These barns were small, but generally high enough for five sets of tier poles. Modern barns are larger framed buildings with passageways for loaded wagons or trucks.

Workers use the stalk-cutting method to harvest fire-cured tobacco. No heat is usually required during the first stage of curing, when the leaf begins to yellow. After the tobacco has been in the barn 3–5 days, slow-burning fires are started on the floor, and temperatures are kept low until the leaf is completely yellowed. Temperatures are then increased and the higher heat maintained until the leaf tissue dries. The fires are maintained for 3–10 days in some barns or production areas and 10–40 days in others (*10*).

Fire-curing gives the leaf a special smoky taste and aroma from contact with the smoke from open fires. The proper combination of heat, humidity, and ventilation are necessary to prevent injury to the leaf and to protect it against mold and discoloration.

Preparation for Market

Once cured, the tobacco leaves must be prepared for market. Flue-cured tobacco is grouped by stalk position because each priming is handled separately. Once removed from the barns, leaves may be sorted again. Workers then place up to 250 pounds of leaves (per sheet) in burlap sheets and deliver the tobacco to market.

For air-cured tobaccos (except cigar), workers remove the stalks from the sticks and arrange them in piles, or bulks, in such a way that the tobacco will retain

moisture for several days. Leaves were traditionally tied into "hands" of 20–40 leaves. However, most burley tobacco is now sold in 60- to 80-pound bales, and some is sold in sheets similar to flue-cured. Limited amounts of burley sold in bales received price supports in 1978 and 1979, and all baled-sales received price supports in 1980. Unlimited support of sheets began in 1983, although price supports were available for tobacco sold in sheets for most of the 1982/83 marketing season.

Loose-leaf sales of burley tobacco reduce labor for market preparation by 30–40 percent. Labor use per acre probably now averages less than 300 hours per acre, compared with 340 in 1976. Some stripping machines also further reduce labor.

When the leaves are removed from the stalk, sorting and grading may take place based on stalk position, color, quality, and size. But less grading occurs now than did 40 years ago.

Cigar types are placed in 40- to 60-pound bales. There is very little sorting by grade for cigar tobacco. The sorting primarily consists of separating the tobacco into wrappers and fillers. Wrappers are the top quality leaves, while fillers (also known as stemmings) are used principally in loose-leaf chewing tobacco.

Market preparation for shade-grown tobacco is more complicated and time-consuming. Workers harvest shade-grown tobacco by priming the leaves as they ripen, and several primings are made. Each priming is handled separately, and the leaves are carefully brought to the curing barn. Once wilted enough to handle without breaking, the leaves are strung on twine by punching a hole through the butt of the stem. Each end of the string is fastened to a lath, which then hangs on the tiers of the curing barn (*1*).

After the tobacco thoroughly cures, producers place the leaves in boxes, deliver them to packing houses, remove leaves from the boxes, and place the leaves in bulks. The bulks contain 4,000–6,000 pounds of tobacco. The bulking room carefully controls temperature and humidity (*1*). Moisture in tobacco placed in bulks ranges from 24 to 32 percent. Fermentation starts immediately with this moisture content. The maximum temperature attained and the number of days before reaching maximum temperature varies with the condition and quality of the tobacco and the room temperature. The tobacco is turned or rebulked when the temperature lowers. The tobacco requires several rebulkings (*1*).

When the tobacco comes out of the bulks, it is sorted, sized, tied into hands, and packed loosely in cases. After 3–4 weeks, the tobacco is sorted on the basis of color, body, texture, uniformity, and injury; sized to 1-inch lengths; then pressed into bales weighing 150–175 pounds (*1*).

The moisture content at the time of baling ranges from 18 to 20 percent. As the leaves further ferment, the bales are placed in a warm room for 3–4 weeks before they go into regular storage.

Costs of Production (*12*)

Production costs vary by kind of tobacco. Universities in States producing tobacco develop cost of production budgets, but different assumptions, data sources, and budget techniques are used for the cost estimates. USDA's Economic Research Service (ERS) studies flue-cured and burley costs, but not costs for other kinds. The ERS estimates cover dominant production areas for flue-cured and burley tobacco and use consistent assumptions, data sources, and budget techniques.

Flue-Cured Tobacco

Costs of producing flue-cured tobacco increased substantially during 1979–85, especially for curing fuel and machinery and barn ownership. Curing fuel costs rose 68 percent, and machinery and barn ownership costs rose 72 percent. The total U.S. average cost of producing flue-cured tobacco, excluding land and quota, rose from $1,612 per acre in 1979 to $2,861 per acre in 1985 (table 16). Variable costs, such as those for labor and purchased inputs, accounted for 73 percent of total costs in both 1979 and 1985.

Labor, including family workers, was the highest variable cost of production, accounting for about 29 percent of total variable costs in 1985 (app. tables 15 and 16). Curing fuel and electricity costs were the next highest variable costs, accounting for 14 percent of total variable costs in 1985. Pesticide and fertilizer costs, which each accounted for about 5 percent of variable costs, rose about 33 percent from 1979 to 1985. Contributions to the no-net-cost fund and inspection and grading fees amounted to 27 percent of total variable costs in 1985; these fees did not exist before 1982. (Producers contribute to the no-net-cost account so the Government can operate the tobacco loan program at no net cost. Inspection and grading fees cover the cost of inspecting and grading tobacco.)

Land and quota costs added nearly $1,000 to the costs of producing an acre of flue-cured tobacco in the early 1980's. These costs rose 42 percent from 1979 to 1982. Land and quota costs fell in the last

Table 16—U.S. average costs of producing and selling flue-cured tobacco

Item	Production and sales costs						
	1979	1980	1981	1982	1983	1984	1985
				Dollars per acre			
Costs per acre:							
Variable [1]	1,160.35	1,319.99	1,449.89	1,540.41	1,644.11	1,671.52	2,080.10
Machinery and barn ownership [2]	274.41	326.78	398.35	429.10	423.56	471.84	478.28
Farm overhead [3]	30.56	35.52	38.87	40.68	41.35	42.58	42.70
Management [4]	146.55	168.22	188.71	201.02	210.09	218.59	260.11
Total, excluding land and quota	1,611.83	1,850.51	2,075.82	2,211.21	2,319.11	2,404.53	2,861.19
Land and quota allocation [5]	683.97	695.04	896.69	975.43	891.22	NA	NA
				Pounds			
Yield per acre	1,890	1,957	2,162	2,126	2,004	2,206	2,238

Note: See appendix tables 15 and 16 for detailed cost items.
NA = Not available.
[1] Variable costs include labor, plant bed materials, fertilizer and lime, pesticides, sucker control chemicals, tractor fuel and lubricants, curing fuel and electricity, repairs, marketing fees, contributions to the no-net-cost fund, and the inspection and grading fees. [2] Machinery ownership costs include charges for replacement, interest, taxes, and insurance. [3] Farm overhead includes costs of items such as utilities, recordkeeping, farm insurance, general farm maintenance, or other items that cannot be allocated to a specific enterprise. [4] Management charges amount to 10 percent of the costs per acre, excluding land and quota costs. [5] Based on net-share rent approach.
Source: (*12*).

USDA photo

Field of burley tobacco nearly ready for topping. About 18 to 22 leaves will be left on each stalk.

several years because no-net-cost assessments initially rose and then price-support levels fell. However, data are not sufficient to calculate the magnitude of the drop.

Burley Tobacco

Costs to produce burley tobacco, excluding land and quota, rose 38 percent between 1979 and 1985. Variable costs rose 39 percent from 1979 to 1985. Cost hikes were uneven, with machinery and barn ownership costs rising the least, and fertilizer, fuel, pesticide, and other costs rising the most. Fertilizer costs rose 37 percent, pesticides 47 percent, and fuel and lubricants 53 percent. Other costs rose and the contribution to the no-net-cost account, with its significant outlays, became effective in 1982. Machinery ownership costs rose 29 percent, while barn costs rose 14 percent. The U.S. average cost of producing burley, excluding land and quota, rose from $2,539 per acre in 1979 to $3,496 per acre in 1985 (table 17). Variable costs accounted for 69 percent of total costs in 1985, compared with 67 percent in 1979.

Labor's share of total variable costs in 1985, including family and exchange workers, was 4 percent lower than in 1979 (app. tables 17 and 18). Labor's decline stems from producers switching to loose-leaf burley prepared for market in bales and sheets (requiring

Table 17—U.S. average costs of producing and selling burley tobacco

Item	Production and sales costs						
	1979	1980	1981	1982	1983	1984	1985
				Dollars per acre			
Costs per acre:							
Variable[1]	1,708.70	1,939.74	2,155.29	2,231.89	1,952.06	2,528.93	2,425.49
Machinery and barn ownership [2]	562.16	591.69	628.48	660.28	666.39	674.07	681.90
Insurance and irrigation [3]	49.47	54.03	59.15	62.68	63.05	64.94	66.89
Farm overhead [4]	40.90	45.81	51.31	54.04	54.40	55.76	56.88
Management [5]	177.42	246.23	290.15	311.91	201.60	312.41	264.33
Total, excluding land and quota	2,538.65	2,877.50	3,184.38	3,320.80	2,937.60	3,636.11	3,495.50
Land and quota allocation [6]	820.16	998.98	1,170.65	1,228.11	1,086.91	1,163.56	1,026.91
				Pounds			
Yield per acre	1,748	2,119	2,288	2,462	1,625	2,380	2,375

Note: See appendix tables 17 and 18 for detailed cost items.

[1] Variable costs include labor, fertilizer and lime, pesticides, sucker control chemicals, curing and heating fuel, plant bed materials, repairs, marketing fees, contributions to the no-net-cost account, and inspection and grading fees. [2] Machinery ownership costs include charges for replacement, interest, taxes, and insurance. [3] Tobacco's prorated share of insurance and irrigation costs prorated to total acreage (based on acreage actually irrigated). [4] Farm overhead includes costs of items such as utilities, recordkeeping, farm insurance, general farm maintenance, or other items that cannot be allocated to a specific enterprise. [5] Management charges are estimated at 7 percent of gross receipts. [6] Based on net-share rent approach.

Source: (*12*).

less labor), labor costs rising slower than most other costs, and legislation adding costs of the no-net-cost account (fund) to variable costs. After labor, fertilizer is the next most important input, representing 9 percent of total variable costs in 1985.

Land and quota costs add about $1,000 to the costs of growing burley tobacco. These costs were 59 percent higher in 1984 than in 1979, but started to decline in 1985 as support prices declined.

Marketing[2]

About 95–97 percent of the tobacco grown in the United States is sold at auction, where the tobacco is displayed for sale in small individual lots. The remaining 3–5 percent, mostly cigar leaf and dark fire-cured tobacco, is sold directly on the farms or through farmer-owned cooperatives. A very small amount is still sold in the traditional wooden hogsheads.

The auction method began in Danville, Virginia, shortly before the Civil War. The system spread throughout the flue-cured belt in North Carolina and Virginia. Auction marketing was introduced in the Kentucky and Tennessee areas around Clarksville, Tennessee, in 1901.

[2] This section is based largely on (*10*).

Auction Warehouses and Markets

Growers deliver their tobacco to auction warehouses where it is offered for sale at auction. The grower may accept the bid or reject it and offer the tobacco for sale later. If the bid price is not at least 1 cent per pound over the support level for the class and grade, the tobacco can be assigned to the price support program. The grower retains possession if the support program does not cover the tobacco (tobacco price supports are discussed more thoroughly later). Bidders include buyers for manufacturers, dealers, exporters, and speculators. The large auction system provides facilities for handling about 2 billion pounds of tobacco each year, mostly from July through February.

The length of the marketing season varies for the different types of tobacco. Selling begins in the Georgia and Florida flue-cured markets in July and ends when sales in Maryland are completed in April or May the following year. Markets are in towns or cities in growing areas. In 1985, there were about 585 warehouse firms operating in 153 auction markets in the United States. Twelve States have auction markets that sell 12 types of tobacco.

Auction warehouses are designed to provide proper and uniform conditions for tobacco display and sale. USDA regulations require that the tobacco be classed

USDA photo

Flue-cured tobacco auction. Sheets filled with tobacco are placed in rows and each sheet is sold by auction bidding.

and graded under "proper light for correct determination of grade or other characteristics of tobacco." Natural daylight from skylights provides the best source of lighting.

Growers usually deliver their tobacco to the warehouse for sale on specified days through prior arrangements with the warehouse operator. Tobacco may be delivered several hours to several days before the sale, depending on the method of warehouse operation. Flue-cured tobacco is delivered in burlap sheets and displayed for sale in lots weighing up to 250 pounds. Growers of flue-cured tobacco must designate the warehouse where they want to sell their crop. Since the designation procedure began in 1974, individual warehouses provide sales schedules and inspection services, based on the quantity of tobacco designated. Other auction types use the traditional wooden trays or baskets, pallets, or cardboard slip sheets to display tobacco. The baskets are about 40 square inches and are furnished by the warehouse. Bales weighing 60–80 pounds, sheets, or the traditional hands of tobacco are arranged on baskets, pallets, or cardboard slip sheets for display. These displays hold up to eight bales of tobacco. Weights of baskets, pallets, or slip sheets containing leaves vary from 50 to over 700 pounds. After weighing, the sheets, baskets, or slip sheets are moved on the warehouse floor and arranged in rows in preparation for the sale.

A warehouse worker weighs and assigns a ticket with several carbon copies. This ticket shows the grower's name, container serial number, warehouse name, and the tobacco weight in pounds. Spaces are also provided for the Government grademark, buyer's name and grademark, and selling prices.

Shortly before the tobacco is sold, a Federal inspector examines each lot of tobacco and grades it according to official U.S. standards. The inspector writes the grade, date, and his/her initials on the sales ticket, which becomes the certificate of grade for that lot of tobacco. After the sale, data on grades and prices are collected from these tickets to form the basis for published market news reports. Current price reports are available to growers on the warehouse floors.

All designated auction markets provide inspection and market news services as authorized by the Tobacco Inspection Act of 1935. The act mandates inspection on auction markets designated by the Secretary of Agriculture. Inspection services were free until 1982, now growers must pay for this service. Growers paid 55 cents per 100 pounds for inspection in 1985 and 1986.

A market becomes eligible for designation on the basis of a referendum of growers selling on the market. Producers of Maryland tobacco have rejected designation since inspection fees went into effect. Government grading and market news services aid the grower by accurately describing the tobacco and enabling the grower to determine whether the bid price is fair.

Auction Sales

The auction sales group is comprised of the auctioneer, the warehouse operator, the set of buyers, and the warehouse clerk. The warehouse operator, or representative, calls the opening bid. The set of buyers are usually six or eight buyer representatives. The warehouse clerk records onto the sales ticket the details of the sale such as buyer's name, grademark, and the price bid.

Once the warehouse operator starts the bidding, the auctioneer calls the starter's bid, receives other bids, and announces the highest bid received and the buyer purchasing the lot.

The auction sale moves along very rapidly. Buyers make various quick signs which the auctioneer accepts as bids. Auctions in the flue-cured tobacco belt sell 500 lots per hour. Burley auctions average 360 baskets per hour.

The warehouse operator pays the grower on the same day the tobacco sells. The amount due on each

lot is figured immediately after the sale. Selling charges and assessment fees are deducted, and the grower receives a check against the warehouse account (although some checks go to lenders). Buyers usually pay the warehouse operator a few days after the sale. Selling charges range from 3 to 6 percent of the gross value but vary by types of tobacco.

Country Sales of Cigar Leaf and Dark Tobaccos

In most areas producing cigar leaf tobacco, growers sell their tobacco at the farm, a system known as "barn-door" marketing. Marketing through these country sales occurs any time during the growing or curing season, but usually when the tobacco comes in case (when the leaves are moist and can be prepared for market). Buyers are manufacturers of cigars or chewing tobacco or are independent packers.

About 30–85 percent of the fire-cured tobacco produced in the Kentucky and Tennessee area is sold directly at the farm. Barn-door sales of dark air-cured (type 35) tobacco have also become much more prevalent in recent years.

Competitive bidding exists in country sales in the sense that various buyers inspect the tobacco and make offers. But there is less competition than in the auction method. Tobacco may be sold at a flat rate price per pound for the entire crop, or at separate rates per pound for different groups of grades.

Before the loose-leaf auction system of sales developed, growers packed their tobacco in hogsheads and delivered it to commission agents. Hogsheads are round wooden barrel-type containers about 4 feet in diameter and 4–5 feet in height. Today only a very small amount of tobacco is sold in this manner.

Storage and Leaf Processing

Tobacco marketed by growers is not immediately suitable for manufacturing. The tobacco normally must be redried and aged. Tobacco is usually marketed with a moisture content that would not permit storage without deterioration, so this moisture level must be reduced and made uniform before storage. Aging is required to improve the aroma and reduce the harshness and bitter taste of the freshly cured leaf. Aging may be regarded as an extension of the curing process as it also brings chemical and color changes.

Redrying

Buyers at auction markets transfer their purchases to processing plants where tobacco is redried and packed for storage. Redrying involves the almost

USDA photo

Redrying almost completly removes moisture from tobacco. A uniform moisture content is then applied to the leaf.

complete removal of moisture from the tobacco and the application of a uniform moisture content throughout the leaf. Redrying must begin quickly in the flue-cured belt when sales are held during the summer to prevent deterioration. Some redrying plants in the flue-cured area use refrigerated storage to hold unprocessed leaf.

The redrying process takes time and cannot be rushed. Many plants operate 24 hours a day during the height of the buying season. The rate at which the tobacco can be processed for storage controls the speed of the auction sales. About 85–90 million pounds of flue-cured tobacco can be redried each week, thereby limiting auction sales to this amount.

Cigar tobaccos are not redried. The leaves are normally taken directly from the curing barns to packing houses and built into bulks to undergo fermentation. The center of the bulk becomes hot, and the leaves begin to deteriorate. The temperature in the center is closely monitored, and the bulk is dismantled and rebuilt every few days so all leaves have been placed in the center. The tobacco is then further sorted, sized, and packed into bales for cool storage. Fermentation reduces the nicotine and moisture content of the leaf and gives the tobacco a more uniform color. The process continues during the storage period, but at a much slower rate.

Storing

Tobacco is packed for storage in hogsheads or in rectangular cartons. A modern hogshead of prepared tobacco weighs from 950 to 1,200 pounds, depending on the tobacco type and the packing method. Cardboard boxes are also increasingly used because of ease in loading. Rectangular cartons also save space and are easily adapted to automated loading and storage systems.

USDA photo

Hogsheads are used to store tobacco. A modern hogshead of prepared tobacco weighs 950 to 1,200 pounds, depending on the tobacco type and packing method.

Storage warehouses are one-story buildings constructed to provide good ventilation and easy access for moving hogsheads. Tobacco usually requires 1–3 years of aging before manufacturing. During the aging process, the tobacco continues a slow natural fermentation for a sweeter, mellower flavor.

Virtually all tobacco used domestically and more than 67 percent of that bought for export is stemmed (stems and midribs in the center removed) before being redried and stored. There were 60 stemming and redrying plants in 1982, concentrated mainly in towns with large tobacco auctions. These plants provided about $120 million in wages and employed about 8,300 people (table 18).

Manufacturing Tobacco Products

About 103 establishments manufactured tobacco products in 1982, down from 150 in 1977 (table 18). Of the 103 establishments, 14 were highly mechanized cigarette plants operated by the six major manufacturers. The other 89 produced cigars, chewing and pipe tobacco, snuff, and other tobacco products (*17*).

All tobacco product manufacturers had gross receipts (total earnings) of $10.6 billion in 1982, excluding Federal excise taxes. Excise taxes brought the total to over $13 billion. Firms employed nearly 50,000 people, to whom they paid over $1.2 billion in wages and benefits. Gross margins, or the value of sales minus costs of materials (census, value-added), including excise taxes, totaled $8.65 billion.

Cigarette manufacturers' gross receipts (excluding excise taxes) amounted to $9.6 billion in 1982. They employed about 41,500 persons and paid about $1.09 billion in wages, salaries, and wage supplements. Gross margins (census, value-added) from cigarette manufacturers totaled $5.61 billion.

Manufacturers of other tobacco products earned gross receipts of $919 million and employed 8,200 people in 1982, paying about $110 million in wages, salaries, and fringe benefits. Gross margins (census, value-added) of these manufacturers came to about $554 million in 1982.

Government Programs

The Federal Government has operated programs to support and stabilize tobacco prices since the early 1930's. These programs, therefore, reduce risks to growers from seasonal and cyclical price changes, even though weather, production, and use may vary.

1932 to 1982 Programs

The Agricultural Adjustment Act of 1933 designated tobacco as a basic (storable) commodity and provided cash payments to tobacco growers who restricted production in 1933–35. Subsequent legislation in 1936–

Table 18—Tobacco manufacturing establishments

Industry	Establishments		All employees				Value added		Value of production	
			Number		Payroll					
	1977	1982	1977	1982	1977	1982	1977	1982	1977	1982
	—Number—		—Thousand—		Million dollars					
Tobacco stemming and redrying	78	60	10.7	8.3	96.1	119.8	216.5	312.6	2,076.2	3,015.4
Manufacturing:										
Cigarettes	14	14	39.0	41.5	567.7	1,093.7	3,803.1	8,098.3	6,377.4	12,126.8
Cigars	101	60	7.7	5.1	54.9	58.5	125.6	133.3	242.7	253.7
Chewing and smoking tobacco	35	29	3.2	3.1	32.1	51.6	188.9	420.5	354.3	665.4
Total	228	163	60.6	58.0	750.8	1,323.6	4,334.1	8,964.7	9,050.6	16,061.3

Source: (*17*).

37 authorized payments for practicing soil conservation. The Agricultural Adjustment Act of 1938, which authorized marketing quotas (with a penalty for growers exceeding their designated quotas), is the foundation of the current tobacco program. Growers were authorized payments up to 75 percent of parity for their tobacco when two-thirds or more tobacco growers voted for marketing quotas. For parity price calculations, prices in 1910–14 provided the base period for parity prices for most other commodities, and August 1919–July 1929 provided the base period for tobacco parity prices (*11*).

Many legislative changes have been made since 1938, but the marketing quota authority to provide a balanced flow of tobacco continues. The program is available for all kinds of tobacco except shade-grown wrapper and Perique. Except for the 1939 crops, marketing quotas have been approved and in effect since 1938 for each crop of flue-cured, burley, and dark tobacco. Cigar binder and Ohio filler crops first came under quotas in 1951. Price supports have never applied for Pennsylvania filler, 1965 was the last Maryland crop supported, and cigar binders (types 51–52) were last supported in 1983.

Congress raised the support level to 90 percent of parity in October 1942, which continued through 1948. The Agricultural Act of 1949 continued this parity level and has been the authority for tobacco price supports since 1950. Because of sharply increasing price supports, a 1960 amendment to the 1949 Act set the 1960 crop support prices at the 1959 level. The act also provided that subsequent changes be based on the average parity index for the 3 previous calendar years compared with that in 1959.

The loan program established a support price (loan rate) for each grade of tobacco. An eligible grower (who meets all conditions to receive price supports) receives the loan rate if a buyer's bid price on any lot of tobacco is not above the Government loan rate for the grade. Under price supports, the tobacco is acquired by a cooperative association and serves as collateral for a loan from the Commodity Credit Corporation (CCC). Under an agreement with the CCC, the association arranges for receiving, redrying, packing, storing, and selling the tobacco under loan.

Trends in market prices, loan holdings, and the share of particular grades under loan determine grade loan rates. The weighted average of various loan rates equals the overall support level for each kind of tobacco.

Several changes were made in the tobacco price support and production control program in the 1960's and 1970's. Legislation permitted lease and transfer of acreage allotments in counties in 1962 and implemented acreage and poundage quotas for flue-cured tobacco in 1965. Poundage quotas, and lease and transfer of quotas, became effective for burley in 1971. However, leasing and transferring flue-cured quotas was discontinued in 1987, except that limited lease and transfer was reinstated effective with the 1988 crop. Tobacco producers could sell up to 110 percent of their quota (reduced to 103 percent in 1986), with marketings the following year adjusted by the amount of marketings over their quota (overmarketings) or below their quota (undermarketings). A quota plus undermarketings or minus overmarketings is known as an effective quota. Also, flue-cured producers shifted to untied leaf during the 1960's, and burley growers changed during the late 1970's and early 1980's to selling in bales.

Producer designation of a particular warehouse for flue-cured tobacco sales began in 1974. This regulation provided relief at congested warehouses in the early marketing season. As a condition of eligibility for price support, each producer had to designate a warehouse within 100 miles of the county seat where the farm was located.

The "four leaf plan," an administrative change in 1978, permitted growers to plant additional acreage during 1978–83 if they agreed not to harvest the four lower leaves of each stalk. This change alleviated stocks of lower leaves (for which demand is weak). This plan ended with the 1984 marketing season because it successfully reduced supplies of these grades (*4*).

Recent Changes

The Agriculture and Food Act of 1981 intended that the tobacco price support and production adjustment program operate with no net cost (other than administrative expenses). The tobacco price support and production control program has substantially changed since July 1982; legislation modified the program twice in 1983 and in 1985 and 1986. Many groups did not want the U.S. Treasury spending Federal funds on tobacco. Some growers were concerned that many owners of quotas no longer grew tobacco. Another concern was that U.S. tobacco was losing its competitiveness in world markets as a result of escalating price supports.

The No-Net-Cost Tobacco Program Act of 1982 (P.L. 97–218) was the first in a series of recent legislative changes. This law required that to be eligible for price supports, producers of all kinds of tobacco (beginning with the 1982 crop) must contribute to a fund

or account to assure that the loan program operates at no net cost to the Government (except for administrative expenses).

Flue-cured tobacco growers contributed 3 cents per pound of tobacco marketed in 1982, 7 cents per pound in 1983 and 1984, and 25 cents in 1985 to a no-net-cost fund (changed to an account in late 1985) handled by the Flue-Cured Stabilization Cooperative. The flue-cured assessment was lowered to 2.5 cents per pound in 1986 and to 2 cents in 1987, for reasons discussed later. The level of the contribution is based on projected losses in loan operations, which depend on quantity already under loan and on assumptions about expected loan receipts, interest rates, sale prices, and when sales will occur. The burley contribution was 1 cent in 1982, 5 cents in 1983, 9 cents in 1984, and 4 cents in 1985 (legislation reduced the previously announced 30-cent rate and reduced the price support to $1.49 per pound). The rate for producers was lowered to 2.75 cents in 1986 and to 2 cents in 1987.

The Secretary of Agriculture could reduce support rates for flue-cured tobacco grades that were in excess supply to make prices more competitive. Legislation enacted in April 1986 repealed this provision of the no-net-cost act. The maximum amount permitted under the law in 1982 (later legislation froze all 1983 and most 1984 supports at the 1982 level) limited price supports for flue-cured, burley, and several other types of tobacco. The 1982 law provided the first opportunity for owners of flue-cured allotments and quotas to sell these rights separately from the farms to which the allotments are attached. The allotments and quotas must be sold for use on other farms in the same county, and to active producers (those who grow the crop or share in the risk of growing it).

The legislation required that corporations, utilities, educational and religious institutions, and other entities owning tobacco allotments, but not significantly involved in farming, sell their allotments by December 1, 1983 (later legislation extended the deadline to December 1, 1984). The allotments were to be sold to active producers or to people who planned to become active producers within the same county, or else the allotments would be forfeited. Other provisions prohibited fall leasing of flue-cured quotas, and required that an allotment on any flue-cured farm not exceed 50 percent of that farm's eligible cropland. Leasing previously was permitted during the marketing season so that producers over quota could lease out quota and those whose production fell short could lease in quota. But this provision tended to perpetuate overproduction.

Legislation (P.L. 98–59) froze 1983 tobacco supports at their 1982 levels. The legislation also included two nonprice provisions specific to burley. One provision allowed the Secretary of Agriculture to reduce burley quotas by as much as 10 percent in any 1 year, if necessary, to control overproduction (the previous maximum permitted was 5 percent). The second provision directed that under either of two conditions the Secretary of Agriculture was to determine whether imports were interfering with the U.S. price support and production control program. The conditions were: if the price support is frozen or increased by less than 65 percent of the amount estimated under the current formula, or if burley stocks under loan exceed 20 percent of the marketing quota.

Additional legislation (P.L. 98–180) made more extensive changes in the tobacco program. The legislation included the following provisions:

- Flue-cured price supports for 1984 were frozen at the 1982 level. Supports were frozen again in 1985 because the 3-year moving average index of prices paid by farmers (including wage rates, interest, and taxes) increased less than 5 percent (*14*). Then, beginning in 1986, the price support would have moved up or down each year, based on the formula in effect before the legislation. But that legislation was repealed in 1986. The Secretary of Agriculture retained authority to approve as little as 65 percent of the increase called for by the formula.

- The support price for burley and other types was set in 1984 so as not to narrow the normal price support differential between those types and flue-cured. Again in 1985, the support price for dark-fired, dark air-cured, and cigar tobacco was to be based on the traditional differential between those kinds and flue-cured. Beginning in 1985 for burley and in 1986 for other kinds, determination of the support level was to revert to the formula in existing law, including the Secretary's authority to approve as little as 65 percent of the increase called for by the formula.

- The Secretary of Agriculture, if requested by the Flue-Cured Stabilization Cooperative, could reduce price supports on less marketable grades of flue-cured tobacco. But these price supports could not be reduced for more than 25 percent of the total flue-cured crop. The reductions could not exceed 12 percent of the support rate that would otherwise be established. (This authority was repealed in 1986.)

- Lease and transfer of flue-cured tobacco quota was abolished beginning in 1987 (December 1987

legislation reinstated limited lease and transfer authority for disaster conditions). For the 1985 and 1986 crops, leasing had to be paid for after the tobacco was marketed. Beginning in 1987, flue-cured quota owners can grow the quota on their land, rent the quota to an active grower who will produce the crop on the land to which the quota is assigned (although rental payments cannot be required until after the crop is sold), or sell the quota to an active grower in the county. The seller must allow the buyer up to 5 years to pay for the quota.

- No more than 15,000 pounds of burley quota could be transferred to a single farm beginning in 1984, instead of the 30,000 permitted before 1984.

- To the extent feasible, imported tobacco, except Oriental and cigar tobacco, must be inspected for grade and quality.

The legislation extended the deadline for nonfarming entities to sell tobacco quotas from December 1, 1983, to December 1, 1984. Exemptions from the mandatory sales provision were expanded to include partnerships, family farm corporations, trusts, and estates or similar arrangements where individuals are beneficiaries. The deadline provision excluded educational institutions that use flue-cured or burley quotas for instruction or demonstration. Beginning in 1986, the law requires growers to forfeit any flue-cured quota assigned to a farm on which tobacco has not been planted (or considered planted) during at least 2 of the last 3 years. The latest permitted announcement date for the national flue-cured quota levels was changed from December 1 to December 15.

1985 and 1986 Legislation

Although three significant pieces of legislation were enacted in 1982 and 1983, major problems still existed in the tobacco program. There was a sense of urgency in much of the tobacco industry to further modify the price support formula and move loan stocks into trade channels.

The legislation authorizing the tobacco price support and marketing quota program remains in effect (and thus was not a part of the Agriculture and Food Act of 1981, which expired after the 1985 crop year). Therefore, tobacco provisions were not included in the 1985 farm legislation except that two sections of the Food Security Act of 1985 (P.L. 99–198) affect tobacco imports, and one section affects domestic production.

- Tobacco pesticide residues. Requires that importers must certify or USDA must inspect all flue-cured and burley tobacco imported into the United States to ensure the tobacco does not contain more than a specified residue level of chemicals that have been cancelled, suspended, or otherwise prohibited under the Federal Insecticide, Fungicide, and Rodenticide Act. The Secretary of Agriculture will set the residue standards that apply to domestic and imported flue-cured and burley tobacco.

- End users of imported tobacco. Requires identification of the end user of imported flue-cured and burley tobacco. The end-user is a domestic manufacturer of cigarettes or other tobacco products; an entity that mixes, blends, processes, alters, or stores tobacco; or any other individual that the Secretary of Agriculture may identify.

The Consolidated Omnibus Budget Reconciliation Act of 1985 (P.L. 99–272, referred to as the Reconciliation Act) continues the Federal excise tax on cigarettes at 16 cents a pack and places a 24-cent-per-pound Federal excise tax on snuff and an 8-cent-per-pound tax on chewing tobacco. Other provisions of the law affecting the tobacco production control program included price supports, marketing quotas, purchase requirements, penalties, assessments to the no-net-cost accounts, and purchases of inventory stocks.

Price Supports

- The price support level for 1986 burley tobacco remained at $1.488 per pound. Legislation lowered the price support level for 1986 flue-cured tobacco to $1.438 per pound from the $1.65 effective level of 1985 (before buyer rebates).

- Price supports for 1986 and subsequent crops of any kind of tobacco (other than flue-cured and burley) are set using the same formula as in the previous law. USDA can also reduce support levels for other types of tobacco upon request of loan associations and if market conditions warrant.

- For 1987 and future years, the flue-cured and burley price support is the level for the preceding year, adjusted by changes in the 5-year moving average of market prices (two-thirds weight) and by the changes in a cost of production index (one-third weight). Costs include general variable costs but exclude costs of land, quota, risk, overhead, management, marketing contributions or assessments, and other costs not directly related to producing tobacco. The Secretary of Agriculture could set the price support between 65 and 100 percent of the calculated increase or decrease. However, provisions that gave the Secretary of Agriculture author-

ity to lower the price support on certain grades of flue-cured tobacco were repealed.

Determination of Marketing Quotas

- Flue-cured and burley quotas are now based on: intended purchases by cigarette manufacturers, average annual exports for the 3 preceding years, and the amount of tobacco needed to attain specified reserve stock levels (15 percent of the effective quota, or a minimum of 100 million pounds of flue-cured and 50 million pounds of burley tobacco). Quota reductions for flue-cured and burley tobacco are limited to 6 percent for 1986–89 and 10 percent for 1990–93.

- USDA's discretion for setting flue-cured and burley quotas is limited to 97–103 percent of the amount determined by manufacturers' needs, exports, and the reserve stock level.

- The amount of flue-cured and burley tobacco that can be marketed without penalty is reduced to 103 percent from 110 percent of the farm marketing quota.

- The latest announcement date for marketing quotas for any kind of tobacco other than flue-cured and burley is changed from February 1 to March 1.

Flue-Cured and Burley Purchase Requirements Penalty

- Cigarette manufacturers are required to submit to USDA estimates of their flue-cured and burley purchases for the upcoming marketing year. If the manufacturers do not submit estimated purchases, USDA may provide an estimate.

- Any manufacturer that fails to purchase at least 90 percent of the expected tobacco purchases (whether estimated by the manufacturer or USDA) to determine quotas is subject to a penalty of twice the per pound assessment times the amount by which purchases are less than 90 percent of intended purchases.

- The purchase requirement for each manufacturer will be reduced proportionally if total marketings are less than the effective national marketing quota.

- Penalties collected will be deposited in the no-net-cost flue-cured and burley accounts or funds.

Assessments to No-Net-Cost Accounts or Funds

- Purchasers of flue-cured and burley tobacco will pay the same amount to the association's account or fund as would producers, to the extent practicable.

- Failure to remit the assessment fee will result in a marketing penalty equaling 75 percent of the average market price of the tobacco involved.

- Future burley assessments are to be determined without regard to the 1983 crop, which was declared a disaster crop with special provisions for its disposition.

Purchase of Inventory Stock

- The Flue-Cured Stabilization Cooperative is offering to sell its stocks of 1976–84 crops at discount prices. The 1976–81 crops are discounted 90 percent from established sales values and the 1982–84 crops 10 percent. The base price plus carry-in charges accrued from December 20, 1984, to the date of purchase determine the sales value of the flue-cured inventory. Purchasers will pay carry-in charges from date of purchase to removal from storage.

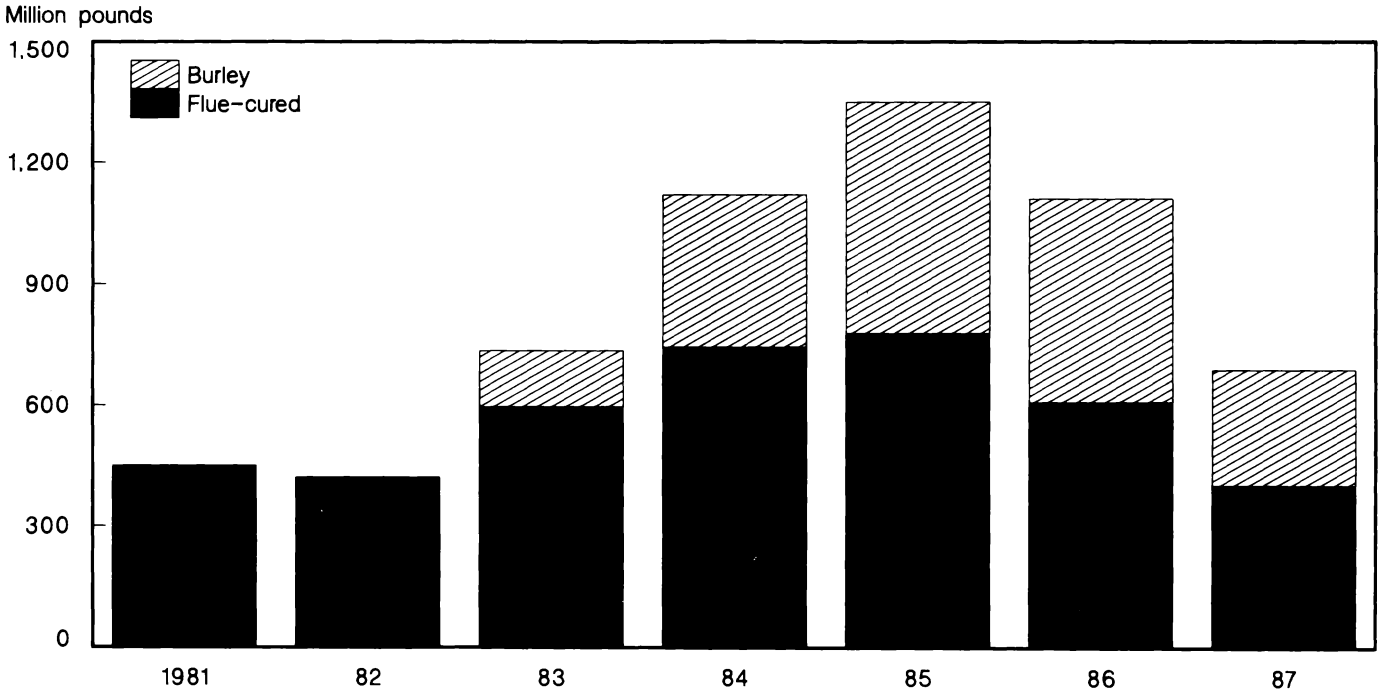
- Burley associations are offering their stocks of 1982 and 1984 tobacco for sale. The 1982 burley crop is offered at the base price from July 1, 1985. The 1984 crop is offered at a price sufficient to cover the association's costs as of April 7, 1986.

- CCC took title to the 1983 burley tobacco loan stocks on May 7, 1986. CCC could offer the tobacco for sale for 2 years. Then, any remaining stocks could be offered for sale at a 90-percent discount. However, all the 1983 loan stocks were sold by the end of 1987.

- The 1976–84 loan stocks of flue-cured and the 1982 and 1984 loan stocks of burley will be sold to manufacturers. Each manufacturer will purchase an amount equaling its share of total cigarette production in the United States. Purchases by manufacturers are to take place over a 5-year period for burley and an 8-year period for flue-cured. The buyout is well ahead of schedule, with about 60 percent of both the flue-cured and burley purchased by the end of 1987.

The legislation described above should help to make U.S. tobacco more competitive in world markets. Without these changes in the support program, to-

Figure 11
Unsold flue-cured and burley loan stocks[1]



1/ Stocks as of the end of August.

bacco's economic prospects were not too bright for the remainder of the decade. High U.S. support prices, stagnant world demand, and increased foreign competition reduced U.S. growers' chances for increased quota or improved prices. Even with the recent changes, earlier postponement of legislative changes in the program, expanded global production, and an unexpected decline in consumption may limit production. But production began to increase by 1987, and unsold loan stocks dropped sharply from 2 years earlier (fig. 11).

World Tobacco Production and Trade

Tobacco is grown in many parts of the world. Cigarettes are the major use of tobacco in the United States and abroad.

World Production

World tobacco production has gradually increased since the 1930's, with the biggest hike coming between 1970–74 and 1975–79 (fig. 12). The world produced about 6.6 billion pounds of tobacco in the late 1930's, and production more than doubled to 13.3 billion pounds by the early 1980's. But U.S. production is up only 23 percent (table 19). U.S. production has declined since the late 1940's, while total world production has grown about 85 percent. High U.S. price supports, relative to those in major competing countries, have been a major factor in the United States' relative decline in world tobacco production.

The United States is the second largest tobacco-producing country in the world; only China produces more (table 19). The United States contributed 14 percent of total world tobacco production in 1980–84, compared with 25 percent in 1960–64.

The six leading producers accounted for about 60 percent of total world production in 1980–84. China accounted for about 25 percent of world production in 1980–84. China's share of world production has risen in the last 20 years (table 19). India, the third largest tobacco producer, had 8 percent of world production in 1980–84. Brazil, the fastest growing major producer, hiked its production 87 percent between 1970–74 and 1980–84 to become the fourth largest tobacco producer, with 6 percent of the world's total. The Soviet Union and Turkey are the world's fifth and sixth largest tobacco producers.

The major types of tobacco produced in the world are flue-cured, burley, and Oriental (app. tables 19–21). These types are used primarily in manufacturing cigarettes. Dark air- and sun-cured, dark fire-cured, and dark air-cured cigar tobacco are used mainly for manufacturing chewing tobacco, cigars, and snuff,

Figure 12
World tobacco production

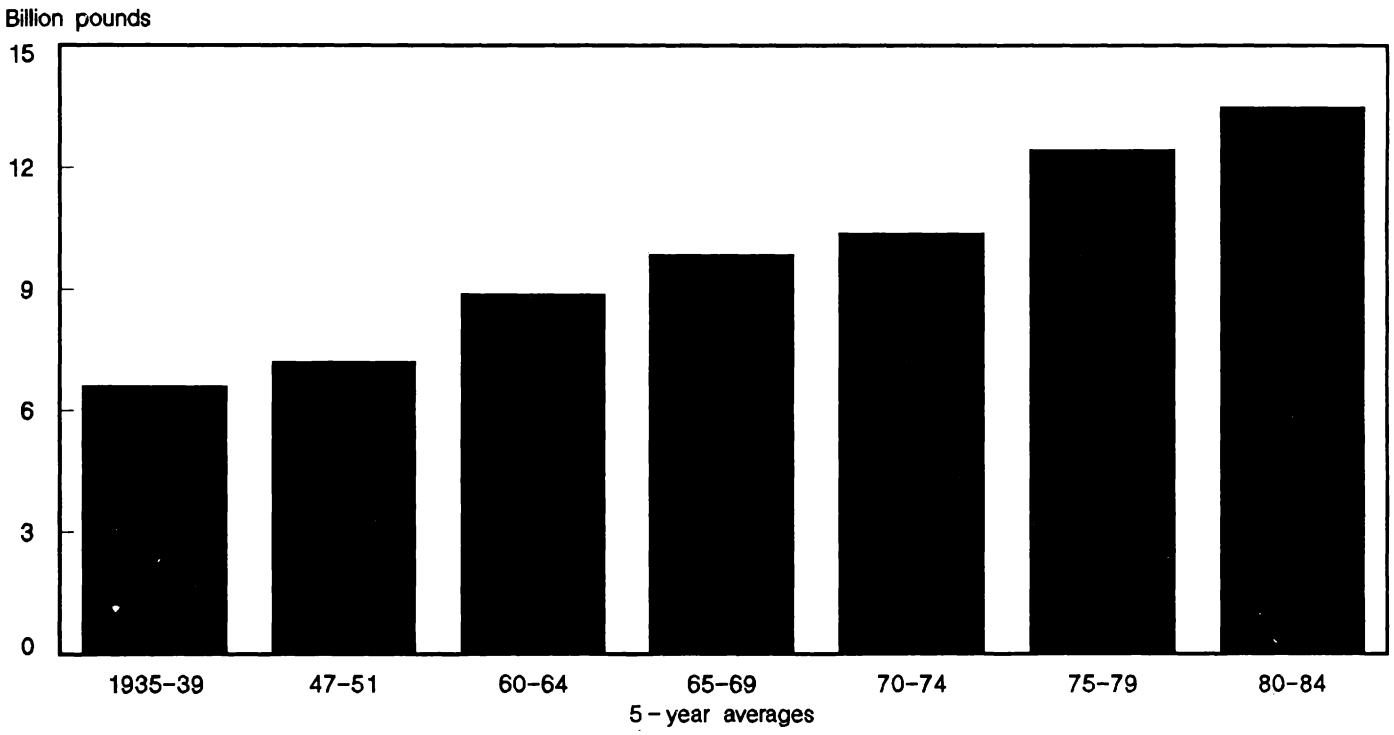


Table 19—Tobacco production in selected countries

Country	Average production							
	1935-39	1947-51	1960-64	1965-69	1970-74	1975-79	1980-84	1985-86
				Million pounds [1]				
Brazil	202.7	233.1	336.2	359.4	434.8	721.2	813.9	877.4
Bulgaria	NA	NA	211.4	257.9	302.9	327.2	318.3	290.9
Canada	76.6	129.4	196.3	216.5	229.6	214.4	217.1	174.1
China	1,338.6	1,425.0[2]	1,399.8	1,734.7	1,872.9	2,376.1	3,396.0	4,397.2
Greece	132.8	113.3	218.7	224.4	190.5	279.8	276.8	327.7
India	761.0	547.2	736.4	763.7	860.8	916.7	1,114.2	1,005.5
Italy	95.5	167.9	125.6	169.5	187.3	254.8	317.0	343.9
Japan	148.7	208.1	333.4	425.8	331.8	277.9	181.9	258.9
Turkey	128.5	194.1	278.8	350.7	377.5	564.8	453.8	366.0
United States	1,460.1	2,082.7	2,178.4	1,854.7	1,824.3	1,960.2	1,800.8	1,337.4
Soviet Union	NA	NA	NA	523.4	631.0	669.3	716.1	834.4
Zimbabwe	26.2	84.7	226.2	185.2	148.2	213.6	225.5	248.8
Subtotal	4,370.7	5,185.5	6,241.2	7,065.8	7,391.4	8,776.1	9,831.2	10,461.7
Other countries[3]	2,248.6	2,029.2	2,661.7	2,814.7	3,004.2	3,659.8	3,660.7	3,762.4
World total	6,619.3	7,214.7	8,902.9	9,880.5	10,395.8	12,435.9	13,491.9	14,224.1
U.S. share of world tobacco production	22	29	24	19	*Percent* 18	16	14	9

NA = Not available.
[1] Farm sales weight. [2] Less than a 5-year average. [3] Data include estimates for countries not listed.
Source: (*13*).

although a substantial amount of dark air- and sun-cured is used for cigarettes.

The United States is the world's second leading flue-cured tobacco producer after China (app. table 19). The U.S. share of world flue-cured production declined about 25 percent from 1960–64 to 1980–84, while China's production rose about 370 percent. The U.S. share of total world production fell from 40 percent in 1960–64 to 15 percent in 1980–84, while China's share rose from 23 to 43 percent.

In Brazil, the world's third largest flue-cured tobacco producer, production has risen sharply over the last 40 years. India, Japan, and Korea also substantially increased production.

The United States is the world's largest burley tobacco producer (app. table 20). U.S. burley production increased 16 percent from 1965–69 to 1980–84, yet the U.S. share of world burley production fell from 70 to 45 percent. Italy, the second largest producer, increased production 263 percent from 1965–69 to 1980–84. Big hikes also occurred in Brazil, Mexico, Greece, Spain, Korea, Japan, and Malawi.

Oriental was the first type of tobacco used in cigarettes. About half the world production of Oriental tobacco enters international trade. This kind of leaf competes heavily with other cigarette tobaccos. Oriental tobacco accounted for about 15 percent of total world production of all tobacco in 1985. Production has increased in the last 5 years and is expected to continue to rise in the near future. Oriental constitutes approximately half the tobacco grown in the Soviet Union and in Eastern Europe. Turkey, Greece, and Bulgaria mostly produce this type (app. table 21).

Production of dark air- and sun-cured, dark fire-cured, and dark air-cured cigar tobacco has decreased slightly during recent years. Major producing countries include China, Burma, Brazil, and Italy.

World Trade

The United States is the major tobacco exporter. U.S. exports of unmanufactured tobacco and tobacco products were valued at $2.79 billion in 1985. Imports were valued at $650 million, leaving a $2.14-billion trade balance.

U.S. tobacco exports fell during the last decade, while those of Brazil, Zimbabwe, Italy, and Malawi all rose (table 20). Relative prices heavily influenced the U.S. export decline. U.S. tobacco prices during the early 1980's were nearly double those of the major

Table 20—World tobacco exports from selected countries

Country	Exports									
	1965–69 average	1970–74 average	1975–79 average	1980	1981	1982	1983	1984	1985	1986 [1]
	Million pounds									
United States	557.9	579.2	615.4	602.9	586.7	574.7	527.8	546.7	549.0	477.5
Brazil	103.2	149.0	249.4	315.9	327.1	366.0	389.8	413.2	440.9	386.5
Greece	165.8	137.6	125.7	155.8	191.8	160.9	180.5	216.8	191.2	222.4
Italy	14.5	63.4	112.1	102.4	167.1	213.6	176.5	213.4	187.4	201.4
Bulgaria	160.1	141.7	151.9	154.8	142.7	132.3	134.0	135.6	136.7	135.7
Malawi	40.9	58.4	85.8	140.6	90.2	100.4	94.2	126.9	135.2	126.9
Zimbabwe	113.6	148.1	147.7	218.2	257.0	178.0	205.4	191.1	217.4	198.5
India	114.6	152.8	162.4	161.3	231.2	215.8	184.1	177.9	142.1	136.2
Turkey	175.4	219.7	154.1	184.6	288.7	231.3	153.3	153.6	226.5	180.7
Thailand	18.3	32.6	60.1	86.1	80.6	83.4	78.4	91.3	72.5	66.8
China	38.0	54.8	52.2	22.0	22.0	110.2	60.4	54.4	42.4	38.1
Philippines	72.1	83.9	62.8	44.9	61.8	58.8	45.4	46.9	39.7	44.0
Subtotal	1,574.5	1,821.2	1,979.6	2,189.5	2,447.0	2,425.5	2,229.8	3,377.8	2,381.0	2,214.7
Other countries [2]	616.0	787.6	1,019.4	805.6	818.0	787.8	788.6	725.5	737.2	762.0
World total	2,190.5	2,608.8	2,999.0	2,995.1	3,265.0	3,213.3	3,018.4	3,103.3	3,118.2	2,976.7
U.S. share of world exports	25	22	21	20	*Percent* 18	18	17	18	18	16

[1] Preliminary. [2] Data include estimates for countries not listed.
Source: (*13*).

competing countries of India, Canada, Thailand, Malawi, Brazil, Zimbabwe, and Korea (table 21). U.S. prices in the early 1960's were about 60 percent higher than grower prices in these foreign countries. Currency devaluations by major competitors and a strong U.S. dollar during the early 1980's also contributed to greater differences in prices for U.S. and foreign tobacco (see table 21).

Brazil and Zimbabwe expanded production of flue-cured tobacco and are boosting exports. Product quality is improving, and prices are lower than in the United States. Malawi and Italy also boosted production and exports of burley tobacco, which are also priced lower than U.S. burley.

Exports of U.S. tobacco rose 30 percent from 1950–54 to 1978–82 (table 10). Exports have accounted for 45–55 percent of total flue-cured use and 15–25 percent of burley use during the last 10 years. Although these shares rose from the 1960's, total disappearance of flue-cured declined during the last 10 years, and during the last 3 years for burley.

Recent lowering of tobacco prices under the Reconciliation Act should help U.S. exports. Also, the dollar was somewhat weaker in the mid-1980's than in the early 1980's. However, only modest gains can be expected because of stagnant or declining cigarette consumption in major importing countries, reduced leaf use per cigarette, quotas and tariffs that discriminate against U.S. tobacco, and ample world supplies.

Major Tobacco Importers. From 1965–69 to 1984, the volume of world tobacco trade increased by 41 percent, from an average of 2.2 billion pounds to 3.1 billion pounds (table 20). Several factors contributed to this growth. Population and income grew rapidly in importing nations, particularly in developing countries. This fostered increased demand for cigarettes during the 1960's and 1970's. However, total world consumption outside China has been steady, and trade has slowed in the last few years.

During the past 10 years, the European Community (EC) reduced total imports, while the United States, second only to the EC in size among importers, increased its import share (table 22). EC price policies have encouraged production, while increased taxes on cigarettes have caused EC consumption to decline, thus lowering total tobacco use.

Imports in Eastern Europe rose during the last decade, largely because of increases in East Germany and Bulgaria. The increase results from lower production and perhaps a change in the type of cigarettes produced in these countries. Bulgaria is also a major exporter of cigarettes.

Japan reduced its tobacco imports. Much of the leaf that Japan imports is high-quality leaf that is blended with less flavorful domestic leaf.

Denmark and Japan consistently import more than half their tobacco supply from the United States (table 23). The U.S. share of tobacco imports in Denmark, Japan, Italy, and Switzerland all exceeded 55 percent in 1985.

U.S. Tobacco Imports. The United States has imported Turkish or Oriental tobaccos for many decades. However, imports of flue-cured and

Table 21—Average export and re-export values of tobacco for selected countries

Type of tobacco and country	Value					
	1981	1982	1983	1984	1985	1986
	U.S. dollars per pound					
Flue-cured:						
United States	2.81	3.03	3.13	3.11	2.93	2.79
India	1.07	1.09	1.02	.90	.88	.86
Brazil	1.22	1.59	1.05	1.12	.95	.91
Zimbabwe	1.18	1.52	1.32	1.25	1.18	1.35
Malawi	1.57	1.70	.96	1.01	.93	1.31
Burley:						
United States	2.90	3.14	3.30	3.28	3.28	2.85
Italy	.70	.71	.73	.65	.95	.83
Mexico	1.08	1.13	.96	.97	1.03	1.07
Greece	1.23	1.29	1.27	1.16	1.00	1.03
Oriental:						
Turkey	1.37	1.51	1.55	1.41	1.46	1.50
Greece	1.50	1.34	1.08	.93	.78	.99
Italy	.26	.26	.18	.21	.19	.59

Source: (*13*).

burley tobacco have risen rapidly since the late 1960's (table 24).

Flue-cured imports rose steadily during 1970–79 (July–June import years). They fell in 1980–81 and 1981–82, increased in 1982–83, fell again in 1983–84, rose in 1984–85, and jumped to a record 24 percent of total flue-cured use in 1985–86. Prices of U.S. flue-cured tobacco that exceeded those of foreign-grown largely caused the growth in flue-cured imports.

On a farm-sales weight basis, estimated U.S. imports of burley tobacco grew steadily during 1970–80, rising from about 3 million pounds in 1970–71 (around 1 percent of U.S. domestic use) to 30–50 million pounds in the mid-1970's (5–8 percent of use). Imports surged in the late 1970's, reaching 137 million pounds by 1980–81. Imports fell in 1981–82, increased in 1982–83, fell a little in 1983–84, then reached a new high of 164 million pounds (29 percent of total burley use) in 1984–85, before falling to 138 million (26 percent of total burley use) in 1985–86.

Burley imports have grown in steps, in part related to the decline in U.S. stocks held under loan in the 1980's and in part to the rise in the level of the U.S. support prices. In 1982, 1983, and 1984, loan stocks built and stood near 600 million pounds of tobacco before 1986 sales of 1983 loan stocks began to lower them.

The increased imports of burley and flue-cured tobacco, together with large lower quality loan stocks, created a dilemma for the tobacco industry. Import quotas currently do not apply to tobacco. Tariff rates vary, depending on the form of tobacco entering the United States. For example, the duty on scrap tobacco is 16.1 cents per pound and 20 cents per pound for stemmed cigarette leaf. Tobacco stems enter free while the duty on some wrapper exceeds

Table 22—World tobacco imports in selected countries [1]

Country or area	Imports							
	1975–79 average	1980	1981	1982	1983	1984	1985 [2]	1986 [3]
	Million pounds							
United States	363.1	431.0	517.9	534.8	459.9	469.5	445.6	447.5
European Community [4]	1,247.4	1,144.8	1,097.2	1,118.5	1,081.3	1,050.4	1,171.1	1,090.6
Eastern Europe	155.9	253.7	246.5	199.4	245.8	229.7	240.3	217.1
Other Western Europe	307.8	337.1	328.7	292.8	297.6	319.8	308.8	279.7
Japan	187.6	157.4	185.8	172.5	176.5	153.7	154.3	146.2
Other countries [5]	639.8	814.6	964.7	884.0	781.2	776.0	728.2	798.2
World total	2,901.6	3,138.6	3,340.8	3,202.0	3,042.3	2,999.1	3,048.3	2,979.3

[1] General imports (actual arrivals). [2] Subject to revision. [3] Preliminary. [4] Spain, Portugal, and Greece not included. [5] Data include estimates for countries not listed.
Source: (*13*).

Table 23—U.S. tobacco exports as a share of total tobacco imports in selected countries

Importing country or area	U.S. share of countries' tobacco imports						
	1980	1981	1982	1983	1984	1985	1986
	Percent						
Denmark	51	33	54	64	58	44	44
Egypt	22	17	23	20	38	56	56
West Germany	24	21	19	18	20	21	22
Italy	47	39	41	42	58	36	35
Japan	52	63	64	65	55	64	65
Netherlands	24	18	14	15	13	16	16
Philippines	37	33	45	40	33	49	35
Spain	17	21	22	26	33	29	30
Switzerland	36	38	53	38	57	53	27
United Kingdom	12	14	11	10	10	10	13
Other countries [1]	12	10	11	9	10	10	9
World total	19	18	18	17	18	18	16

[1] Data include estimates for countries not listed.
Source: (*13*).

$2 per pound, although very little tobacco enters at this rate.

The buyout of existing loan stocks and reduced support levels under the Reconciliation Act are moving loan stocks into trade. More U.S. tobacco is likely to be used, while imports are reduced. However, some imports of burley and flue-cured are expected to continue even with lower U.S. prices because some countries offer even lower priced flue-cured and burley than does the United States.

Import controls can be implemented under section 22 of the Agricultural Adjustment Act of 1933, as amended, if ". . . any article or articles are being or are practically certain to be imported into the United States under such conditions and in such quantities as to render or tend to render ineffective, or materially interfere with, any loan, purchase, or other program or operation undertaken by the Department of Agriculture. . . ." USDA requested the International Trade Commission (ITC) to conduct a section 22 review of tobacco in 1981 and again in 1984. Imports of flue-cured tobacco increased substantially in the late 1970's, and USDA initiated section 22 action for flue-cured quotas in January 1981. But imports of flue-cured and several other types continued to rise, so an investigation was initiated in September 1984 on whether flue-, fire-, and dark air-cured and burley tobaccos are imported under such conditions that render ineffective or materially interfere with USDA programs. In both instances, the ITC found that tobacco imports did not materially interfere with the tobacco price support program and that a basis did not exist for imposing import restrictions under section 22 (*4*).

World Cigarette Production and Exports

World cigarette production has exceeded 4 trillion pieces in the past 8 years. An annual growth rate of about 2.5 percent has prevailed since the 1960's (app. table 22). China, the United States, and the Soviet Union are the leading cigarette producers. Production of cigarettes is increasing in China, West Germany, and the Soviet Union. However, cigarette production has declined in the United States, Canada, and the United Kingdom. U.S. consumption declined from health concerns, increased prices, antismoking activity, restrictions on where people can smoke, and increased excise taxes. The United States produced an average of 15 percent of total world cigarette production during the last 8 years.

About 7 percent of world cigarette production is exported. The leading cigarette exporters are the United States, Bulgaria, and West Germany (app. table 23). The Netherlands, China, and Bulgaria are increasing cigarette exports, while the United Kingdom may be reducing its exports. U.S. cigarette exports have varied during the last 8 years, ranging from 19 to 27 percent of world cigarette exports.

Table 24—Estimated U.S. domestic use and imports of flue-cured and burley tobacco

Year beginning July 1	Flue-cured				Burley			
	Imports [1]	Domestic disappearance	Total use	Imports' share of total use	Imports [1]	Domestic disappearance [2]	Total use	Imports' share of total use
	Million pounds [3]			*Percent*	*Million pounds* [3]			*Percent*
1969	5.7	645.9	651.6	0.9	3.3	507.1	510.4	0.6
1970	10.6	640.1	650.7	1.6	3.2	503.0	506.2	.6
1971	11.2	662.5	673.7	1.7	4.6	515.2	519.8	.9
1972	12.7	664.2	676.9	1.9	8.9	534.5	543.4	1.6
1973	20.4	703.4	723.8	2.8	30.7	533.1	563.8	5.4
1974	23.1	652.3	675.4	3.4	47.7	518.8	566.5	8.4
1975	24.4	670.6	695.0	3.5	46.7	510.1	556.8	8.4
1976	30.8	634.0	644.8	4.6	37.9	489.6	527.5	7.2
1977	55.0	608.2	663.2	8.3	85.4	594.8	580.2	14.7
1978	60.1	584.1	644.2	9.3	89.1	502.8	591.9	15.1
1979	84.8	563.1	647.9	13.1	113.6	498.5	612.1	18.6
1980	72.7	529.4	602.1	11.7	136.9	477.6	614.5	22.3
1981	63.3	488.8	552.1	11.5	109.7	463.9	573.6	19.1
1982	103.1	478.5	581.6	17.7	141.3	444.1	585.4	24.1
1983	94.4[4]	441.6	536.0	17.6	135.0[4]	388.7	523.7	25.8
1984	120.1[4]	454.2	574.3	20.9	163.8[4]	402.6	566.4	28.9
1985	151.0[5]	476.5	627.5	24.1	137.8[5]	425.0	562.8	24.5
1986	176.6[5]	479.6	656.2	26.9	120.4[5]	401.8	522.2	23.1

[1] Imports for consumption (duty paid) of leaf, scrap, and manufactured or unmanufactured tobacco, prorated according to reported stocks of imported flue-cured and burley (beginning 1980). [2] Marketing year beginning October 1. [3] Farm sales weight. [4] General imports adjusted for change in stocks. [5] Volume, inspected by USDA's Agricultural Marketing Service, adjusted for change in stocks. Source: (*12*).

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Appendix table 1--Flue-cured tobacco: Acreage, yield, marketings, stocks, supply, disappearance, and price

Marketing year 1/	Acreage	Yield per acre	Marketings 2/	Stocks	Supply	Disappearance			Average price to growers
						Total	Domestic	Exports	
	1,000 acres	Pounds	Million pounds						Cents per pound
1950	958	1,312	1,257	1,485	2,742	1,185	757	428	54.7
1951	1,110	1,309	1,453	1,557	3,010	1,279	777	502	52.4
1952	1,111	1,229	1,365	1,731	3,096	1,244	828	416	50.3
1953	1,022	1,245	1,272	1,852	3,124	1,209	778	431	52.8
1954	1,042	1,261	1,314	1,915	3,229	1,173	744	429	52.7
1955	991	1,497	1,483	2,056	3,539	1,281	728	553	52.7
1956	875	1,625	1,423	2,258	3,681	1,170	705	465	51.5
1957	663	1,471	975	2,511	3,486	1,178	737	441	55.4
1958	639	1,691	1,081	2,308	3,389	1,179	736	443	58.2
1959	693	1,559	1,081	2,210	3,291	1,185	766	419	58.3
1960	692	1,808	1,251	2,106	3,357	1,267	792	475	60.4
1961	698	1,801	1,258	2,090	3,348	1,267	782	485	64.3
1962	730	1,930	1,408	2,081	3,489	1,208	776	432	60.1
1963	694	1,975	1,371	2,282	3,653	1,267	769	498	58.0
1964	628	2,211	1,388	2,386	3,774	1,219	775	444	58.5
1965	562	1,883	1,059	2,555	3,614	1,175	752	423	64.6
1966	607	1,825	1,108	2,439	3,547	1,274	687	587	66.9
1967	610	2,070	1,250	2,273	3,523	1,221	687	534	64.2
1968	533	1,841	996	2,302	3,298	1,197	672	525	66.6
1969	577	1,825	1,053	2,100	3,153	1,181	646	535	72.4
1970	584	2,042	1,178	1,972	3,151	1,174	640	534	72.0
1971	526	2,050	1,076	1,976	3,053	1,143	663	480	77.2
1972	514	1,971	1,022	1,910	2,932	1,183	664	519	85.3
1973	575	2,011	1,159	1,749	2,908	1,301	703	598	88.1
1974	616	2,014	1,245	1,607	2,852	1,201	652	548	105.0
1975	717	1,973	1,415	1,652	3,067	1,193	671	523	99.8
1976	667	1,974	1,316	3/ 1,898	3,214	1,148	634	514	110.4
1977	589	1,917	1,124	4/ 2,075	3,199	1,147	608	539	117.6
1978	602	2,046	1,206	4/ 2,052	3,258	1,183	584	599	135.0
1979	503	1,881	946	2,075	3,021	1,083	563	520	140.0
1980	555	1,957	1,086	1,965	3,052	1,039	530	509	144.5
1981	541	2,164	1,144	2,013	3,157	1,012	489	523	166.4
1982	472	2,131	994	2,145	3,139	935	479	456	178.5
1983	410	2,004	855	2,205	3,060	894	442	453	177.9
1984	392	2,206	850	2,165	3,015	935	454	481	181.1
1985	357	2,241	789	2,080	2,870	912	477	435	171.9
1986	308	2,099	667	1,958	2,625	873	480	393	152.7
1987	5/ 327	5/ 2,091	5/ 684	1,752	5/ 2,436	6/ 890	6/ 495	6/ 395	158.7

1/ Marketing year beginning July 1. 2/ Actual marketings in the marketing year, except 1987 are estimated. 3/ Adjusted for change in conversion factor, January 1, 1977. 4/ Stocks revised January 1, 1979. 5/ Preliminary. 6/ Estimated. Source: (12).

Appendix table 2--Burley tobacco: Acreage, yield, marketings, stocks, supply, disappearance, and price

Marketing year 1/	Acreage	Yield per acre	Marketings 2/	Stocks	Supply	Disappearance			Average price to growers
						Total	Domestic	Exports	
	1,000 acres	Pounds	Million pounds						Cents per pound
1950	408	1,222	499	1,000	1,499	518	488	30	49.0
1951	456	1,355	618	981	1,599	538	506	32	51.2
1952	464	1,403	650	1,061	1,711	548	519	29	50.3
1953	420	1,345	564	1,163	1,727	529	494	35	52.5
1954	421	1,586	668	1,198	1,866	519	486	33	49.8
1955	311	1,513	470	1,347	1,817	518	484	34	58.6
1956	310	1,635	506	1,299	1,805	510	482	28	63.6
1957	307	1,592	488	1,295	1,783	506	478	28	60.3
1958	297	1,567	465	1,277	1,742	518	483	35	66.1
1959	301	1,669	502	1,224	1,726	535	499	36	60.6
1960	296	1,639	485	1,191	1,676	549	508	41	64.3
1961	319	1,820	580	1,127	1,707	570	525	45	66.5
1962	339	1,993	675	1,137	1,812	584	531	53	58.6
1963	339	2,231	755	1,228	1,983	571	514	57	59.2
1964	307	2,022	620	1,412	2,032	616	560	56	60.3
1965	277	2,116	586	1,416	2,002	607	550	57	67.0
1966	241	2,437	587	1,395	1,982	600	544	56	66.9
1967	238	2,274	541	1,382	1,923	599	546	53	71.8
1968	238	2,372	563	1,324	1,887	571	516	55	73.7
1969	238	2,488	591	1,316	1,907	565	507	58	69.6
1970	216	2,590	561	1,343	1,903	557	503	54	72.2
1971	214	2,213	473	1,346	1,818	570	515	55	80.9
1972	236	2,552	590	1,249	1,839	610	535	75	79.2
1973	222	2,028	461	1,229	1,691	619	533	87	92.9
1974	261	2,350	610	1,071	1,681	587	519	68	113.7
1975	282	2,265	638	1,094	1,733	603	510	92	105.5
1976	286	2,376	664	3/ 1,160	1,824	606	490	117	114.2
1977	269	2,298	613	4/ 1,217	1,830	611	495	117	120.0
1978	261	2,396	618	4/ 1,218	1,836	624	503	121	131.2
1979	238	1,873	446	1,212	1,658	632	499	133	145.2
1980	277	2,027	558	1,026	1,583	583	478	106	165.9
1981	331	2,203	726	1,000	1,726	605	464	141	180.7
1982	346	2,374	777	1,121	1,898	579	444	135	181.0
1983	293	1,645	527	1,319	1,845	501	389	112	177.3
1984	316	2,256	674	1,344	2,018	556	403	154	187.6
1985	255	2,247	542	1,462	2,004	576	425	151	159.4
1986	211	1,936	420	1,428	1,848	567	402	165	156.5
1987	5/ 225	5/ 2,012	5/ 480	1,281	6/ 1,761	6/ 580	6/ 415	6/ 165	6/ 151.0

1/ Marketing year beginning October 1. 2/ Actual marketings in the marketing year, except 1987 are estimated. 3/ Adjusted for change in conversion factor, January 1, 1977. 4/ Stocks revised January 1, 1979. 5/ Preliminary. 6/ Estimated. Source: (12).

Appendix table 3--Maryland tobacco: Acreage, yield, production, stocks, supply, disappearance, and price

Marketing year 1/	Acreage	Yield per acre	Production	Stocks 2/	Supply	Disappearance			Average price to growers
						Total	Domestic	Exports	
	1,000 acres	Pounds	Million pounds						Cents per pound
1950	50.0	800	40.0	53.4	93.4	35.5	27.1	8.4	48.2
1951	53.0	785	41.6	59.3	100.9	33.3	26.7	6.6	44.8
1952	50.0	805	40.2	64.9	105.1	40.3	32.5	7.8	48.8
1953	45.0	900	40.5	65.4	105.9	36.4	28.4	8.0	54.5
1954	50.0	875	43.8	68.6	112.4	36.1	27.9	8.2	40.3
1955	47.0	670	31.5	77.5	109.0	38.6	25.7	12.9	50.8
1956	43.5	840	36.5	69.7	106.2	34.9	21.4	13.5	51.7
1957	37.0	1,040	38.5	69.4	107.9	37.0	25.0	12.0	44.9
1958	34.0	915	31.1	70.9	102.0	39.4	24.1	15.3	62.5
1959	40.0	780	31.2	64.2	95.4	32.3	20.4	11.9	61.6
1960	37.5	925	34.7	61.7	96.4	35.6	23.6	12.0	63.8
1961	40.0	970	38.8	60.6	99.4	32.6	20.7	11.9	62.0
1962	41.0	990	40.6	67.3	107.9	30.7	19.5	11.2	55.8
1963	34.5	1,000	34.5	76.6	111.1	31.0	18.5	12.5	43.2
1964	39.0	1,085	42.3	82.0	124.3	32.9	23.3	9.6	62.0
1965	33.5	1,150	38.5	90.1	128.6	35.7	24.7	11.0	65.5
1966	35.0	1,030	36.0	89.7	125.7	40.2	23.7	16.5	48.6
1967	31.5	1,030	32.4	86.3	118.7	36.0	20.3	15.7	62.4
1968	29.0	1,100	31.9	81.5	113.4	48.7	38.3	10.4	69.8
1969	26.5	1,060	28.1	66.7	94.8	41.3	29.1	12.2	75.1
1970	27.0	1,090	29.4	50.1	79.5	39.5	27.6	11.9	78.6
1971	27.0	1,040	28.1	46.0	74.1	25.5	17.5	8.0	81.9
1972	24.0	990	23.8	46.6	70.4	25.5	13.4	12.1	84.5
1973	27.8	1,260	35.0	43.8	78.8	26.1	13.8	12.3	87.8
1974	26.0	1,260	32.8	51.7	84.5	33.5	25.0	8.5	92.2
1975	23.0	955	22.0	53.6	75.6	35.7	26.0	9.7	107.5
1976	25.0	1,205	30.1	41.9	72.0	29.9	17.4	12.5	110.0
1977	25.0	1,230	30.8	45.3	76.1	29.0	19.6	9.4	115.1
1978	24.0	1,275	30.6	41.9	72.5	31.1	21.1	10.1	123.1
1979	19.5	1,130	22.0	41.3	63.4	33.6	23.6	10.0	139.7
1980	24.0	1,091	26.2	32.6	58.8	27.3	18.6	8.7	167.9
1981	36.2	1,281	46.4	37.0	83.4	36.0	27.9	8.1	157.3
1982	29.3	1,433	42.0	40.7	82.7	38.9	26.0	12.9	148.0
1983	31.3	1,196	37.4	3/ 40.6	78.0	33.8	29.7	4.1	106.9
1984	27.3	1,396	38.1	3/ 41.3	79.4	37.7	28.7	9.0	132.0
1985	23.5	1,400	32.9	3/ 42.2	75.1	34.0	26.0	8.0	131.9
1986	19.4	1,430	27.8	3/ 45.6	72.5	30.5	23.9	6.6	107.6
1987	4/ 18.4	4/ 1,336	4/ 24.6	3/ 43.5	4/ 68.1	NA	NA	NA	NA

NA = Not available.

1/ Year beginning October 1. 2/ As of January 1 of marketing year. 3/ Adjusted to reflect calendar years 1983-87 sales of tobacco produced in Pennsylvania. 4/ Preliminary. Source: (12).

Appendix table 4--Fire-cured tobacco (types 22-23): Acreage, yield, production, stocks, supply, disappearance, and price

Marketing year 1/	Acreage	Yield per acre	Production	Stocks	Supply	Disappearance			Average price to growers
						Total	Domestic	Exports	
	1,000 acres	Pounds	Million pounds						Cents per pound
1950	43.1	1,054	45.4	141.8	187.2	64.6	30.7	33.9	29.7
1951	39.0	1,183	46.1	122.6	168.7	48.8	25.8	23.0	40.3
1952	37.6	1,223	46.0	119.9	165.9	48.3	24.2	24.1	38.1
1953	38.4	1,034	39.7	117.6	157.3	49.5	26.0	23.5	33.3
1954	42.0	1,229	51.6	107.8	159.4	48.9	23.9	25.0	38.5
1955	39.1	1,399	54.7	110.5	165.2	52.0	24.6	27.4	38.4
1956	38.5	1,555	59.9	113.2	173.1	52.3	27.5	24.8	36.1
1957	24.7	1,411	41.9	120.8	162.7	53.3	29.5	23.8	36.4
1958	24.3	1,393	33.9	109.4	143.3	44.1	24.6	19.5	38.1
1959	27.6	1,560	43.1	99.2	142.3	41.1	22.5	18.6	38.3
1960	25.9	1,411	36.5	101.2	137.7	44.9	23.9	21.0	43.3
1961	27.9	1,552	43.3	92.8	136.1	46.7	17.2	29.5	40.2
1962	28.5	1,566	44.6	89.4	134.0	40.8	21.1	19.7	38.7
1963	27.7	1,794	49.7	93.2	142.9	41.4	19.6	21.8	36.9
1964	24.8	1,855	46.0	101.5	147.5	42.7	21.7	21.0	41.0
1965	23.2	1,574	36.6	104.8	141.4	45.6	18.0	27.6	43.6
1966	21.0	1,919	40.2	95.8	136.0	44.7	21.0	23.7	42.2
1967	17.3	1,702	29.5	91.3	120.8	42.0	14.9	27.1	46.2
1968	17.9	1,822	32.6	78.8	111.4	38.7	19.1	19.6	51.1
1969	19.0	1,797	34.1	72.7	106.8	43.0	18.5	24.5	48.1
1970	17.7	1,749	30.9	63.8	94.7	41.4	13.1	28.3	54.4
1971	19.5	1,928	37.6	53.3	90.9	34.7	16.0	18.7	60.8
1972	20.4	1,844	37.6	56.2	93.8	36.5	14.2	22.3	57.3
1973	16.6	1,668	27.7	57.3	85.0	39.9	15.7	24.2	71.7
1974	16.2	1,602	26.0	45.1	71.1	30.3	14.5	15.8	93.4
1975	18.4	1,772	32.6	40.7	73.3	30.7	12.2	18.5	104.7
1976	21.2	1,567	33.2	42.6	75.8	34.6	11.2	23.4	142.4
1977	25.6	1,767	45.2	41.2	86.4	35.4	17.4	18.0	132.3
1978	27.1	1,898	51.4	51.0	102.4	37.3	15.1	22.2	112.5
1979	22.1	1,791	39.6	65.1	104.7	36.7	18.0	18.7	115.2
1980	19.4	1,680	32.6	68.0	100.6	37.5	19.7	17.8	121.9
1981	20.6	1,578	32.4	63.1	95.5	33.0	14.5	18.5	161.1
1982	23.5	2,030	47.7	62.5	110.2	41.5	20.9	20.6	156.0
1983	21.5	1,511	32.5	68.7	101.2	37.0	16.4	20.6	181.7
1984	23.7	2,133	50.5	64.2	114.7	30.4	15.7	14.7	155.4
1985	21.5	2,134	45.9	84.3	130.2	33.8	17.4	16.4	149.2
1986	18.2	2,076	37.7	96.4	134.1	38.1	17.7	20.4	144.5
1987	2/ 11.5	2/ 1,983	2/ 22.8	96.0	2/ 118.8	NA	NA	NA	NA

NA = Not available.

1/ Marketing year beginning October 1. 2/ Preliminary. Source: (12).

Appendix table 5--Fire-cured tobacco (type 21): Acreage, yield, production, stocks, supply, disappearance, and price

Marketing year 1/	Acreage	Yield per acre	Production	Stocks	Supply	Disappearance			Average price to growers
						Total	Domestic	Exports	
	1,000 acres	Pounds	Million pounds						Cents per pound
1950	9.8	1,310	12.8	23.1	35.9	11.3	5.9	5.4	36.3
1951	10.0	1,340	13.4	24.6	38.0	11.0	6.3	4.7	39.2
1952	9.8	1,250	12.2	27.0	39.2	10.5	5.5	5.0	35.5
1953	9.9	930	9.2	28.7	37.9	11.7	6.9	4.8	35.6
1954	10.0	1,060	10.6	26.2	36.8	10.2	6.0	4.2	34.4
1955	9.1	1,155	10.5	26.6	37.1	12.7	6.7	6.0	31.3
1956	8.5	1,260	10.7	24.4	35.1	10.3	4.8	5.5	39.5
1957	6.9	1,245	8.6	24.8	33.4	9.6	4.2	5.4	38.7
1958	6.8	1,385	9.4	23.8	33.2	10.7	5.3	5.4	36.9
1959	7.6	1,320	10.0	22.5	32.5	10.3	4.9	5.4	37.6
1960	7.3	1,220	8.9	22.2	31.1	10.2	4.0	6.2	39.4
1961	7.5	1,300	9.8	20.9	30.7	10.8	5.5	5.3	38.8
1962	7.6	1,255	9.5	19.9	29.4	9.2	4.1	5.1	38.8
1963	6.6	940	6.2	20.2	26.4	9.6	3.0	6.6	35.5
1964	7.3	1,245	9.1	16.8	25.9	10.3	4.0	6.3	43.1
1965	7.6	1,260	9.6	15.6	25.2	8.3	3.0	5.3	39.9
1966	6.0	1,255	7.5	16.9	24.4	9.6	2.3	7.3	41.2
1967	5.4	1,290	7.0	14.8	21.8	10.1	3.4	6.7	40.9
1968	4.9	1,205	5.9	11.7	17.6	7.7	3.0	4.7	46.9
1969	5.0	1,340	6.7	9.9	16.6	6.8	1.7	5.1	53.1
1970	5.0	1,230	6.2	9.8	16.0	7.0	2.4	4.6	52.0
1971	5.0	1,180	5.9	9.0	14.9	6.6	3.1	3.5	54.8
1972	4.8	970	4.7	8.3	13.0	5.4	1.3	4.1	64.2
1973	4.7	1,205	5.7	7.6	13.3	6.2	1.7	4.5	75.5
1974	5.0	1,185	5.9	7.1	13.0	5.7	.7	5.0	81.7
1975	5.0	975	4.9	7.3	12.2	4.8	1.4	3.4	93.0
1976	5.3	1,000	5.3	7.4	12.7	6.1	2.0	4.1	118.0
1977	7.2	1,000	7.2	6.7	13.9	5.2	2.8	2.4	96.2
1978	6.1	1,120	6.8	8.7	15.5	4.6	1.0	3.6	94.5
1979	4.8	1,135	5.4	10.9	16.3	7.0	3.2	3.8	107.9
1980	3.9	935	3.6	9.3	12.9	4.6	2.6	2.0	128.1
1981	4.1	1,265	5.2	8.3	13.5	4.5	1.8	2.7	131.7
1982	4.8	1,150	5.5	9.0	14.5	4.2	2.7	1.5	117.6
1983	4.7	985	4.6	10.3	14.9	6.9	4.8	2.1	126.8
1984	4.6	1,325	6.1	8.0	14.1	4.1	1.1	3.0	117.8
1985	3.6	1,245	4.5	10.0	14.5	2/ 8.6	2/ 3.9	2/ 4.7	124.0
1986	2.9	1,220	3.5	5.9	9.4	3/ 2.4	3/ .5	3/ 1.9	127.8
1987	3/ 2.4	3/ 1,150	3/ 2.8	3/ 7.0	3/ 10.8	NA	NA	NA	NA

NA = Not available.

1/ Marketing year beginning October 1. 2/ Includes about 2-1/2 million pounds lost in a November 1985 flood. 3/ Preliminary. Source: (12).

Appendix table 6--Dark air-cured tobacco (types 35-36): Acreage, yield, production, stocks, supply, disappearance, and price

Marketing year 1/	Acreage	Yield per acre	Production	Stocks	Supply	Disappearance			Average price to growers
						Total	Domestic	Exports	
	1,000 acres	Pounds	Million pounds						Cents per pound
1950	25.5	983	25.0	76.8	101.8	32.9	22.6	10.3	23.2
1951	23.0	1,204	27.7	68.9	96.6	26.4	18.5	7.9	34.3
1952	22.9	1,314	30.1	70.2	100.3	25.2	19.2	6.0	31.6
1953	22.3	1,060	23.6	75.2	98.8	26.7	20.1	6.6	25.2
1954	21.8	1,395	30.4	72.1	102.5	25.9	16.3	9.6	34.3
1955	20.0	1,391	27.8	76.6	104.4	23.6	18.4	5.2	31.8
1956	19.3	1,592	30.7	80.8	111.5	34.0	23.4	10.6	34.0
1957	14.5	1,367	19.8	77.5	97.3	24.8	18.5	6.3	36.1
1958	12.7	1,269	16.1	72.5	88.6	25.0	17.5	7.5	38.4
1959	13.2	1,466	19.3	63.6	82.9	21.9	16.4	5.5	34.5
1960	13.0	1,403	18.2	61.0	79.2	22.0	17.3	4.7	37.4
1961	13.5	1,525	20.6	57.2	77.8	22.6	17.9	4.7	37.8
1962	13.9	1,619	22.5	55.2	77.7	19.5	16.5	3.0	36.2
1963	13.8	1,751	24.2	58.2	82.4	21.2	18.1	3.1	33.3
1964	12.4	1,828	22.7	61.2	83.9	22.0	18.0	4.0	37.0
1965	11.3	1,639	18.5	61.9	80.4	19.8	16.2	3.6	37.0
1966	10.7	1,987	21.3	60.6	81.9	21.4	17.0	4.4	37.3
1967	9.5	1,629	15.5	60.5	76.0	17.8	14.8	3.0	40.8
1968	9.8	1,831	18.0	58.2	76.2	17.1	15.0	2.1	47.4
1969	10.1	1,793	18.1	59.1	77.2	23.5	21.2	2.3	40.3
1970	8.2	1,863	15.4	53.7	69.1	19.3	16.7	2.6	46.0
1971	8.6	1,834	15.7	49.8	65.5	19.3	17.4	1.9	47.1
1972	8.2	1,875	15.5	46.2	61.7	17.0	14.7	2.3	50.3
1973	7.6	1,647	12.4	44.7	57.1	20.2	17.4	2.8	61.9
1974	7.0	1,653	11.6	36.9	48.5	15.6	12.8	2.8	76.9
1975	8.0	1,750	14.0	32.9	46.9	18.7	16.1	2.6	89.8
1976	9.3	1,660	15.1	28.2	43.3	17.2	15.1	2.1	116.6
1977	11.2	1,809	20.4	26.1	46.9	16.1	13.6	2.4	117.7
1978	11.2	1,969	22.2	30.4	52.6	18.4	15.7	2.7	99.1
1979	9.7	1,665	16.1	34.1	50.2	16.0	14.2	1.8	111.7
1980	9.3	1,745	16.2	34.2	50.4	14.0	12.0	2.0	126.5
1981	9.7	1,614	15.7	36.4	52.1	14.2	12.3	1.9	133.0
1982	10.2	1,951	19.9	37.9	57.8	15.5	14.7	.8	122.8
1983	8.7	1,643	14.3	42.3	56.6	13.9	11.7	2.2	151.3
1984	8.8	2,157	19.0	42.7	61.7	13.9	11.5	2.4	127.9
1985	7.5	2,025	15.2	47.8	63.0	12.1	9.4	2.7	126.3
1986	5.3	2,057	10.9	50.9	61.8	13.1	10.9	2.2	120.3
1987	2/ 3.8	2/ 1,895	2/ 7.2	48.7	2/ 55.9	NA	NA	NA	NA

NA = Not available.

1/ Marketing year beginning October 1. 2/ Preliminary. Source: (12).

Appendix table 7--Virginia sun-cured tobacco (type 37): Acreage, yield, production, stocks, supply, disappearance, and price

Marketing year 1/	Acreage	Yield per acre	Production	Stocks	Supply	Disappearance			Average price to growers
						Total	Domestic	Exports	
	1,000 acres	Pounds	Million pounds						Cents per pound
1950	3.2	1,120	3.6	4.0	7.6	3.5	3.0	0.5	33.9
1951	3.5	1,145	4.0	4.1	8.1	3.8	3.1	.7	34.6
1952	3.4	1,100	3.7	4.3	8.0	4.0	3.4	.6	31.6
1953	3.7	790	2.9	4.0	6.9	3.2	2.7	.5	31.8
1954	4.1	900	3.7	3.7	7.4	3.2	2.7	.5	32.2
1955	4.2	775	3.3	4.2	7.5	2.9	2.1	.8	25.3
1956	3.1	1,030	3.2	4.6	7.8	2.5	1.9	.6	35.7
1957	2.6	1,030	2.7	5.3	8.0	2.5	1.9	.6	34.0
1958	1.6	1,070	1.9	5.5	7.4	2.5	2.2	.3	36.8
1959	2.1	1,040	2.2	4.9	7.1	1.9	1.6	.3	34.4
1960	1.8	995	1.8	5.2	7.0	2.0	1.7	.3	37.9
1961	2.1	1,045	2.2	5.0	7.2	2.1	1.8	.3	39.8
1962	2.2	1,040	2.3	5.1	7.4	2.3	2.0	.3	37.4
1963	1.5	760	1.1	5.1	6.2	2.0	1.7	.3	31.4
1964	1.7	1,060	1.8	4.2	6.0	1.7	1.4	.3	41.2
1965	1.8	1,105	2.0	4.3	6.3	2.0	1.7	.3	39.2
1966	1.4	1,065	1.5	4.3	5.8	1.6	1.2	.4	42.3
1967	1.2	1,090	1.3	4.2	5.5	1.6	1.2	.4	45.2
1968	1.1	1,095	1.2	3.9	5.1	1.3	1.1	.2	53.2
1969	1.1	1,225	1.3	3.8	5.1	1.8	1.5	.3	52.8
1970	1.0	1,100	1.1	3.3	4.4	1.3	1.1	.2	53.8
1971	.9	1,200	1.1	3.1	4.2	1.2	1.0	.2	54.1
1972	.8	1,010	.8	3.0	3.8	.6	.4	.2	57.9
1973	.7	1,320	.9	3.2	4.1	1.1	.9	.2	69.2
1974	.7	1,315	.9	3.0	3.9	1.6	1.3	.3	82.1
1975	.7	930	.7	2.3	3.0	.9	.7	.2	85.5
1976	.7	1,115	.8	2.1	2.9	1.1	.9	.2	105.0
1977	.8	1,030	.8	1.8	2.6	.8	.6	.2	100.0
1978	.7	1,205	.9	1.8	2.7	.5	.3	.2	88.8
1979	.5	1,055	.6	2.2	2.8	.8	.6	.2	90.8
1980	.4	1,010	.4	2.0	2.4	.8	.7	.1	127.1
1981	.5	1,320	.7	1.6	2.3	.7	.6	.1	131.7
1982	.6	1,290	.7	1.6	2.3	.8	.7	.1	106.4
1983	.5	780	.4	1.5	1.9	.5	.4	.1	132.5
1984	.4	1,340	.6	1.4	2.0	.6	.4	.2	94.3
1985	.2	1,150	.2	1.4	1.6	.7	.5	.2	100.0
1986	.1	1,245	.2	.9	1.0	2/ .2	2/ .1	2/ .1	124.2
1987	2/ .1	2/ 1,050	2/ .1	2/ .8	2/ .9	NA	NA	NA	NA

NA = Not available.

1/ Marketing year beginning October 1. 2/ Preliminary. Source: (12).

Appendix table 8--Pennsylvania seedleaf cigar tobacco (type 41): Acreage, yield, production, stocks, supply, disappearance, and price

Marketing year 1/	Acreage	Yield per acre	Production	Stocks	Supply	Disappearance			Average price to growers
						Total	Domestic	Exports	
	1,000 acres	Pounds	----------	----------	Million pounds	----------	----------	----------	Cents per pound
1950	37.3	1,500	56.0	115.8	171.8	45.6	45.0	0.6	26.4
1951	34.9	1,610	56.2	126.2	182.4	50.0	49.3	.7	19.0
1952	23.7	1,600	37.9	132.4	170.3	51.2	50.8	.4	25.2
1953	25.8	1,480	38.2	119.1	157.3	51.6	51.4	.2	27.5
1954	29.2	1,670	48.8	105.7	154.5	41.5	41.4	.1	27.4
1955	29.5	1,550	45.7	113.0	158.7	55.0	54.6	.4	24.5
1956	29.0	1,670	48.4	103.7	152.1	46.8	46.6	.2	24.0
1957	29.0	1,420	41.2	105.3	146.5	42.8	42.7	.1	20.5
1958	30.0	1,700	51.0	103.7	154.7	50.4	50.1	.3	28.0
1959	31.0	1,725	53.5	104.3	157.8	48.1	48.0	.1	31.5
1960	31.0	1,700	52.7	109.7	162.4	47.5	47.4	.1	28.0
1961	31.0	1,725	53.5	114.9	168.4	45.5	45.4	.1	27.0
1962	30.0	2,000	60.0	122.9	182.9	52.0	51.7	.3	23.5
1963	28.0	1,850	51.8	128.0	179.8	44.7	44.2	.5	21.0
1964	27.0	1,700	45.9	138.1	184.0	54.6	54.1	.5	27.0
1965	27.0	1,900	51.3	129.4	180.7	53.0	51.2	1.8	24.0
1966	23.0	1,675	38.5	127.7	166.2	53.9	52.4	1.5	25.0
1967	21.0	1,825	38.3	112.3	150.6	41.9	41.3	.6	28.0
1968	21.0	1,775	37.3	108.7	146.0	40.9	40.0	.9	30.0
1969	20.0	1,825	36.5	105.1	141.6	44.3	43.7	.6	30.0
1970	17.0	1,800	30.6	97.3	127.9	40.9	40.7	.2	31.0
1971	15.2	1,610	24.5	87.0	111.5	41.3	40.6	.4	36.0
1972	13.0	1,400	18.2	70.2	88.4	34.7	34.4	.3	46.0
1973	13.0	1,700	22.1	53.7	75.8	28.3	27.5	.8	52.0
1974	13.0	2,000	26.0	47.5	73.5	24.3	24.0	.3	58.0
1975	12.0	1,650	19.8	49.2	69.0	22.2	21.8	.4	58.0
1976	13.5	1,750	23.6	46.8	70.4	20.7	20.3	.4	60.0
1977	13.5	1,940	26.2	49.7	75.9	21.8	21.6	.2	60.0
1978	13.0	1,940	25.2	54.1	79.3	23.6	23.5	.1	62.0
1979	11.2	1,580	17.7	55.7	73.4	24.3	24.0	.3	72.0
1980	13.0	1,900	24.7	49.1	73.8	21.7	21.4	.3	87.0
1981	13.3	2,050	27.3	52.1	79.4	27.1	26.9	.2	80.0
1982	10.7	2,000	21.4	52.3	73.7	19.6	19.2	.4	73.0
1983	7.7	1,850	14.2	54.1	68.3	20.3	20.0	.3	83.0
1984	7.7	1,900	14.6	48.0	62.6	20.1	19.9	.2	90.0
1985	8.0	1,950	15.6	42.5	58.1	16.4	16.2	.2	71.0
1986	7.6	2,000	15.2	41.7	56.9	24.8	24.6	.2	66.0
1987	2/ 7.6	2/ 1,900	2/ 14.4	32.1	2/ 46.5	NA	NA	NA	NA

NA = Not available.

1/ Marketing year beginning October 1. 2/ Preliminary. Source: (12).

Appendix table 9--Ohio cigar filler tobacco (types 42-44): Acreage, yield, production, stocks, supply, disappearance, and price

Marketing year 1/	Acreage	Yield per acre	Production	Stocks	Supply	Disappearance 2/		Average price to growers
						Total	Domestic	
	1,000 acres	Pounds	Million pounds					Cents per pound
1950	7.8	1,350	10.5	28.0	38.5	7.3	7.3	18.6
1951	4.9	1,480	7.3	31.2	38.5	10.0	10.0	24.4
1952	5.7	1,550	8.8	28.5	37.3	10.0	10.0	25.0
1953	4.7	1,400	6.6	27.3	33.9	9.8	9.8	18.5
1954	4.6	1,750	8.0	24.1	32.1	9.2	9.2	22.5
1955	4.4	1,700	7.5	22.9	30.4	7.2	7.2	21.8
1956	3.9	1,625	6.3	23.2	29.5	6.4	6.4	22.0
1957	3.6	1,270	4.6	23.1	27.7	7.2	7.2	22.8
1958	3.0	835	2.5	20.5	23.0	5.9	5.9	24.2
1959	3.9	1,770	6.9	17.1	24.0	6.5	6.5	27.3
1960	4.3	1,535	6.6	17.5	24.1	6.5	6.5	28.1
1961	4.6	1,665	7.7	17.6	25.3	5.1	5.1	28.3
1962	4.2	1,775	7.5	20.2	27.7	6.6	6.6	28.2
1963	3.9	1,740	6.8	21.1	27.9	8.7	8.7	27.1
1964	3.7	1,555	5.8	19.2	25.0	8.0	8.0	26.7
1965	3.7	1,465	5.4	17.0	22.4	6.2	6.2	26.2
1966	3.2	1,885	6.0	16.2	22.2	6.7	6.7	28.0
1967	2.3	1,580	3.6	15.5	19.1	6.2	6.2	29.0
1968	2.0	1,670	3.4	12.9	16.3	5.4	5.4	31.0
1969	1.7	1,650	2.8	10.9	13.7	4.7	4.7	32.5
1970	1.6	1,750	2.9	9.0	11.9	4.1	4.1	38.0
1971	2.0	1,850	3.8	7.8	11.6	4.6	4.6	41.0
1972	2.4	1,780	4.2	7.0	11.2	4.4	4.4	44.0
1973	2.2	1,420	3.1	6.8	9.9	4.0	4.0	51.0
1974	2.0	1,530	3.1	5.9	9.0	3.1	3.1	59.0
1975	2.1	1,620	3.4	5.9	9.3	3.6	3.6	60.0
1976	2.2	1,550	3.4	5.7	9.1	3.1	3.1	59.0
1977	1.8	2,025	3.6	6.0	9.6	2.6	2.6	62.0
1978	1.6	1,850	3.0	7.0	10.0	3.7	3.7	64.0
1979	1.3	1,500	2.0	6.3	8.3	4.5	4.5	87.0
1980	1.4	1,700	2.4	3.8	6.2	4.1	4.1	107.0
1981	1.7	1,440	2.5	4.0	6.5	2.1	2.1	105.0
1982	1.8	1,950	3.5	4.4	7.9	2.0	2.0	90.0
1983	1.4	1,370	1.9	5.9	7.8	1.9	1.9	75.0
1984	1.1	2,000	2.2	5.9	8.1	1.9	2.0	90.0
1985	.8	2,050	1.7	6.2	7.9	.8	.8	87.0
1986	.3	1,595	.5	7.1	7.6	1.3	1.3	89.0
1987	3/ .1	3/ 1,500	3/ .1	3/ 6.3	3/ 6.4	NA	NA	NA

NA = Not available.
1/ Marketing year beginning October 1. 2/ Exports were negligible in all years.
3/ Preliminary. Source: (12).

Appendix table 10--Puerto Rican filler tobacco (type 46): Acreage, yield, production, stocks, supply, disappearance, and price

Marketing year 1/	Acreage	Yield per acre	Production	Stocks	Supply	Disappearance			Average price to growers
						Total	Domestic	Exports	
	1,000 acres	Pounds	Million pounds						Cents per pound
1950	34.0	750	25.5	51.1	76.6	28.8	28.5	0.3	28.0
1951	33.8	831	28.1	47.8	75.9	34.1	33.8	.3	30.0
1952	35.6	963	34.3	41.8	76.1	28.9	28.6	.3	32.0
1953	40.5	842	34.1	47.2	81.3	32.1	32.0	.1	30.0
1954	36.9	921	34.0	49.2	83.2	23.9	23.8	.1	30.5
1955	35.1	855	30.0	59.3	89.3	31.7	31.6	.1	25.2
1956	25.5	941	24.0	57.6	81.6	31.3	30.9	.4	30.8
1957	25.8	1,035	26.7	50.3	77.0	27.4	27.3	.1	27.5
1958	23.5	1,089	25.6	49.6	75.2	32.8	31.6	1.2	30.0
1959	25.6	1,062	27.6	42.4	70.0	26.2	25.8	.4	32.2
1960	26.8	1,011	27.1	43.8	70.9	27.6	27.5	.1	34.2
1961	27.6	1,101	30.4	43.3	73.7	32.1	32.1	*	37.2
1962	28.5	1,249	35.6	41.6	77.2	28.0	28.0	*	38.0
1963	30.0	1,067	32.0	49.2	81.2	29.8	29.6	*	40.8
1964	30.8	1,231	37.9	51.4	89.3	26.7	26.7	*	37.2
1965	17.0	951	16.2	62.6	78.8	27.0	27.0	*	32.1
1966	9.0	1,338	12.0	51.8	63.8	23.3	23.3	*	31.3
1967	7.6	1,419	10.8	40.5	51.3	16.9	16.9	*	33.1
1968	6.0	1,282	7.6	34.4	42.0	16.2	16.2	*	33.3
1969	4.7	1,303	6.1	25.8	31.9	12.6	12.6	*	33.6
1970	3.2	1,397	4.5	19.3	23.8	8.8	8.8	*	36.1
1971	4.8	1,418	6.7	15.0	21.7	9.0	9.0	*	39.8
1972	5.6	883	4.8	12.7	17.5	8.3	8.3	*	42.1
1973	4.5	1,435	6.5	9.2	15.7	5.7	5.7	*	41.2
1974	2.7	1,477	3.9	10.0	14.0	7.9	7.9	*	45.5
1975	2.7	1,500	4.3	6.1	10.4	3.2	3.2	*	50.7
1976	2.8	1,429	4.1	7.2	11.3	4.9	4.9	*	57.6
1977	2.6	1,480	3.9	6.4	10.3	3.9	3.9	*	60.2
1978	2.2	1,400	3.1	6.4	9.5	2.6	2.6	*	57.0
1979	2.0	1,000	2.0	6.9	8.9	.8	.8	*	69.1
1980	1.1	1,380	1.5	8.1	9.6	1.6	1.6	*	73.5
1981	.6	1,000	.6	8.0	8.6	1.3	1.3	*	86.0
1982	.3	1,000	.3	7.3	7.6	.8	.8	*	91.0
1983	.8	1,000	.8	6.8	7.6	1.5	1.5	*	91.0
1984	.6	1,000	.6	6.1	6.7	.3	.3	*	74.0
1985	.4	1,000	.4	6.4	6.8	.8	.8	*	74.0
1986	.2	1,000	.2	6.0	6.2	1.3	1.3	*	75.0
1987	2/ .2	2/ 1,000	2/ .2	4.9	2/ 5.1	NA	NA	NA	NA

* = Negligible.
NA = Not available.
1/ Marketing year beginning October 1. 2/ Preliminary. Source: (12).

Appendix table 11--Connecticut binder cigar tobacco (types 51-52): Acreage, yield, production, stocks, supply, disappearance, and price

Marketing year 1/	Acreage	Yield per acre	Production	Stocks	Supply	Disappearance			Average price to growers
						Total	Domestic	Exports	
	1,000 acres	Pounds	----------	----------	Million pounds	----------	----------	----------	Cents per pound
1950	18.9	1,670	31.6	52.7	84.3	27.2	24.5	2.7	46.1
1951	15.3	1,676	25.7	57.1	82.8	25.1	22.3	2.8	47.3
1952	15.1	1,620	24.4	57.7	82.1	27.4	25.3	2.1	49.6
1953	14.6	1,833	26.7	54.7	81.4	25.3	23.5	1.8	56.8
1954	14.4	1,754	25.2	56.1	81.3	24.6	23.7	.9	50.6
1955	13.4	1,643	22.0	56.7	78.7	26.3	24.4	1.9	40.4
1956	7.2	1,849	13.3	52.4	65.7	20.0	17.0	3.0	51.7
1957	4.3	1,940	8.3	45.7	54.0	15.9	14.0	1.9	48.2
1958	2.9	1,867	5.4	38.1	43.5	9.0	8.2	.8	52.4
1959	4.5	1,712	7.7	34.5	42.2	9.0	8.1	.9	43.4
1960	3.8	1,802	6.8	33.2	40.0	8.8	6.5	2.3	43.3
1961	2.9	1,881	5.5	31.2	36.7	6.9	5.7	1.2	42.1
1962	2.6	2,014	5.3	29.8	35.1	9.5	8.6	.9	48.5
1963	2.8	2,093	6.0	25.6	31.6	8.7	7.1	1.6	47.5
1964	2.8	2,021	5.7	22.9	28.6	7.3	5.2	2.1	47.9
1965	2.6	1,910	5.0	21.3	26.3	7.0	4.9	2.1	45.9
1966	1.8	2,111	3.8	19.3	23.1	6.8	5.2	1.6	51.2
1967	1.5	1,819	2.7	16.4	19.1	7.9	5.7	2.2	54.5
1968	1.6	1,808	2.8	11.2	14.0	5.1	4.7	.4	59.5
1969	1.6	1,434	2.3	8.9	11.2	4.2	3.9	.3	58.2
1970	1.7	1,756	2.9	7.0	9.9	2.7	2.4	.3	65.5
1971	1.6	1,743	2.8	7.2	10.0	2.6	2.5	.1	65.1
1972	1.6	1,600	2.5	7.4	9.9	2.4	2.3	.1	70.1
1973	1.6	1,721	2.7	7.5	10.2	3.2	3.1	.1	72.8
1974	1.5	1,737	2.5	7.0	9.5	3.3	3.1	.2	82.0
1975	1.5	1,582	2.4	6.2	8.6	4.3	4.1	.2	92.7
1976	1.5	1,605	2.4	4.3	6.7	2.4	2.3	.1	89.6
1977	1.4	1,784	2.5	4.3	6.8	1.9	1.9	*	121.3
1978	1.5	1,734	2.6	4.9	7.5	2.1	2.0	.1	144.9
1979	1.5	1,637	2.4	5.5	7.9	2.2	2.0	.2	161.5
1980	1.5	1,750	2.6	5.7	8.3	2.2	2.0	.2	178.8
1981	1.7	1,998	3.5	6.1	9.6	2.5	2.4	.1	182.1
1982	2.1	1,660	3.5	7.1	10.6	3.3	3.1	.2	180.9
1983	1.4	1,793	2.5	7.3	9.8	3.2	3.0	.2	155.7
1984	1.1	1,794	1.9	6.7	8.6	2.7	2.4	.3	167.6
1985	1.1	1,819	2.1	5.9	8.0	1.5	1.3	.2	177.5
1986	1.1	1,770	2.0	6.5	8.5	2.1	1.9	.2	177.5
1987	2/ 1.0	2/ 1,733	2/ 1.8	6.4	2/ 8.2	NA	NA	NA	NA

* = Negligible.
NA = Not available.
1/ Marketing year beginning October 1. 2/ Preliminary. Source: (12).

Appendix table 12--Wisconsin binder cigar tobacco (types 54-55): Acreage, yield, production, stocks, supply, disappearance, and price

Marketing year 1/	Acreage	Yield per acre	Production	Stocks	Supply	Disappearance			Average price to growers
						Total	Domestic	Exports	
	1,000 acres	Pounds	Million pounds						Cents per pound
1950	22.1	1,446	31.9	80.9	112.8	29.4	29.3	.1	26.2
1951	15.8	1,473	23.3	93.4	106.7	31.6	31.5	.1	28.6
1952	15.1	1,447	21.9	75.1	97.0	28.3	26.5	1.8	26.9
1953	14.3	1,400	20.0	68.7	88.7	26.4	26.1	.3	25.8
1954	15.0	1,530	22.9	62.3	85.2	25.3	24.6	.7	30.0
1955	14.3	1,469	21.0	59.9	80.9	23.7	23.0	.7	24.1
1956	11.8	1,712	20.2	57.2	77.4	24.8	24.4	.4	29.3
1957	11.6	1,709	19.8	52.6	72.4	25.8	23.3	2.5	32.6
1958	13.0	1,682	21.8	46.6	68.4	22.4	19.7	2.7	35.0
1959	14.4	1,449	20.8	46.2	67.0	20.4	19.2	1.2	33.7
1960	14.6	1,431	20.9	46.6	67.5	18.8	18.2	.6	29.5
1961	13.7	1,640	22.4	48.7	71.1	20.0	19.5	.5	29.2
1962	12.1	1,621	19.6	51.1	70.7	18.9	18.6	.3	29.2
1963	10.7	1,680	18.0	51.9	69.9	22.2	22.2	*	30.9
1964	10.9	1,821	19.9	47.7	67.6	18.1	17.5	.6	34.2
1965	10.9	1,765	19.3	49.5	68.8	18.2	17.9	.3	29.3
1966	9.3	1,744	16.2	50.6	66.8	16.8	16.5	.3	33.3
1967	8.3	1,943	16.1	50.0	66.1	17.3	16.9	.4	34.2
1968	7.7	1,824	14.1	48.8	62.9	22.6	22.2	.4	37.3
1969	7.4	1,778	13.1	40.3	53.4	18.1	17.8	.4	41.8
1970	8.8	2,095	18.4	35.3	53.7	16.5	16.4	.3	51.1
1971	10.6	2,125	22.5	37.2	59.7	20.4	20.4	.1	54.9
1972	10.8	1,731	18.7	39.3	58.0	19.1	19.1	*	48.5
1973	10.2	1,859	19.0	38.9	57.9	22.2	22.2	*	60.6
1974	9.4	1,965	18.5	35.8	54.3	18.7	18.7	*	75.1
1975	11.0	1,891	20.8	35.6	56.4	17.2	17.1	.1	75.1
1976	11.1	1,821	20.2	39.2	59.4	19.4	19.4	*	75.2
1977	12.0	2,032	24.4	40.0	64.4	19.3	19.2	.1	85.0
1978	12.1	1,678	20.3	45.1	65.4	20.1	20.1	*	100.5
1979	12.9	1,942	25.0	45.3	70.3	21.4	21.4	*	117.0
1980	12.9	2,013	26.0	48.9	74.9	21.3	21.3	*	125.0
1981	13.7	1,924	26.4	53.6	80.0	20.0	20.0	*	110.6
1982	10.1	1,994	20.1	60.0	80.1	19.8	19.8	*	103.7
1983	8.6	1,941	16.7	60.3	77.0	18.5	18.5	*	109.6
1984	8.1	2,025	16.4	58.5	74.9	17.5	17.5	*	110.5
1985	8.2	2,192	18.0	57.4	75.4	21.6	21.6	*	103.0
1986	6.6	1,633	10.8	53.4	64.2	16.8	16.8	*	95.6
1987	2/ 3.7	2/ 2,078	2/ 7.7	47.4	2/ 55.1	NA	NA	NA	NA

* = Negligible.
NA = Not available.
1/ Marketing year beginning October 1. 2/ Preliminary. Source: (12).

Appendix table 13--Shade-grown cigar wrapper tobacco (types 61-62): Acreage, yield, production, stocks, supply, disappearance, and price

Marketing year 1/	Acreage	Yield per acre	Production	Stocks	Supply	Disappearance			Average price to growers
						Total	Domestic	Exports	
	1,000 acres	Pounds	Million pounds						Cents per pound
1950	13.7	1,130	15.5	19.4	34.9	14.9	11.3	3.6	203.0
1951	13.6	1,098	14.9	20.0	34.9	13.7	10.1	3.6	194.0
1952	13.1	1,124	14.7	21.2	35.9	16.6	12.2	4.4	198.0
1953	12.3	1,203	14.8	19.3	34.1	15.9	12.2	3.7	202.0
1954	13.0	1,264	16.4	18.2	34.6	16.6	12.4	4.2	207.0
1955	12.9	1,213	15.6	18.0	33.6	16.6	11.5	5.1	202.0
1956	13.3	1,290	17.2	17.0	34.2	15.7	11.2	4.5	186.0
1957	13.1	1,442	18.9	18.5	37.4	16.8	11.5	5.3	199.0
1958	12.9	1,283	16.5	20.6	37.1	16.8	11.5	5.3	216.0
1959	14.0	1,325	18.5	20.3	38.8	16.1	12.2	3.9	204.0
1960	14.6	1,460	21.3	23.9	45.2	17.8	14.3	3.5	194.0
1961	13.4	1,429	19.1	27.4	46.5	21.1	15.2	5.9	214.0
1962	13.2	1,464	19.3	25.4	44.7	19.6	14.7	4.9	233.0
1963	12.9	1,449	18.7	25.1	43.8	21.7	15.3	6.4	240.0
1964	13.8	1,530	21.1	22.1	43.2	21.6	17.3	4.3	245.0
1965	15.6	1,468	22.9	21.6	44.5	20.0	14.9	5.1	241.0
1966	14.6	1,440	21.0	24.5	45.5	20.8	16.6	4.2	257.0
1967	13.6	1,292	17.6	24.7	42.3	20.8	15.9	4.9	308.0
1968	13.4	1,343	18.1	21.5	39.6	20.0	16.2	3.8	276.0
1969	11.3	1,411	15.9	19.6	35.5	14.1	12.2	1.9	341.3
1970	9.6	1,555	14.9	21.4	36.3	14.3	12.4	1.9	351.0
1971	7.7	1,614	12.4	22.0	34.4	14.6	11.1	3.5	347.5
1972	7.1	1,365	9.7	19.8	29.5	11.8	8.6	3.2	387.0
1973	7.6	1,280	9.8	17.7	27.5	12.5	10.1	2.4	452.2
1974	6.6	1,652	11.0	15.0	26.0	10.4	6.0	4.4	536.1
1975	5.5	1,409	7.7	15.7	23.4	9.8	5.6	4.2	585.7
1976	4.6	1,565	7.2	13.6	20.8	7.7	3.8	3.8	528.2
1977	3.4	1,547	5.3	13.1	18.4	5.8	1.0	4.8	591.4
1978	2.7	1,392	3.8	12.7	16.5	6.3	1.0	5.3	750.0
1979	2.7	1,472	4.0	10.2	14.2	6.5	1.1	5.4	850.0
1980	3.0	1,513	4.5	7.8	12.3	6.1	2.2	3.9	980.0
1981	2.6	1,592	4.1	6.2	10.2	5.0	3.4	1.6	1000.0
1982	1.1	1,421	1.6	5.2	6.8	3.4	2.4	1.0	1250.0
1983	1.0	1,706	1.7	3.4	5.1	1.4	.4	1.0	1100.0
1984	1.2	1,414	1.7	3.7	5.4	2.7	.5	2.2	1250.0
1985	1.4	1,501	2.0	2.7	4.8	2.2	.2	2.0	1265.0
1986	1.3	1,266	1.7	2.6	4.3	2.1	.2	1.9	1310.0
1987	2/ 1.3	2/ 1,417	2/ 1.8	2.2	2/ 4.0	NA	NA	NA	NA

NA = Not available.

1/ Marketing year beginning July 1. No type 62 tobacco has been produced since 1978.

2/ Preliminary. Source: (12).

Appendix table 14--Cigar tobacco (types 41-62): Acreage, yield, production, stocks, supply, disappearance, and price

Marketing year 1/	Acreage	Yield per acre	Production	Stocks	Supply	Disappearance			Average price to growers
						Total	Domestic	Exports	
	1,000 acres	Pounds	Million pounds						Cents per pound
1965	76.8	1,562	120.1	301.4	421.5	131.4	122.1	9.3	68.3
1966	60.9	1,603	97.5	290.1	387.6	128.3	120.7	7.6	78.2
1967	54.3	1,642	89.1	259.4	348.5	111.0	102.9	8.1	85.7
1968	51.7	1,610	83.3	237.5	320.8	110.2	104.7	5.5	85.9
1969	46.7	1,645	76.7	210.6	287.3	98.0	94.9	3.1	97.7
1970	41.9	1,771	74.2	189.3	263.4	87.3	84.8	2.5	102.3
1971	41.9	1,734	72.7	176.2	248.9	92.5	88.5	4.0	96.7
1972	40.4	1,434	58.1	156.4	214.5	80.7	77.1	3.6	104.4
1973	39.1	1,627	63.2	133.8	197.0	75.9	72.6	3.3	116.1
1974	35.2	1,848	65.1	121.2	186.3	67.7	62.8	4.9	142.5
1975	34.8	1,678	58.4	118.6	177.1	60.3	55.4	4.9	135.1
1976	35.7	1,709	61.0	116.8	177.7	58.2	53.7	4.4	121.4
1977	34.7	1,900	65.9	119.5	185.4	55.2	50.0	5.2	114.9
1978	33.1	1,752	58.0	130.1	188.2	58.6	53.2	5.5	122.1
1979	31.6	1,684	53.2	129.9	183.1	59.7	53.8	5.9	156.4
1980	32.9	1,875	61.7	123.4	185.1	57.1	52.5	4.6	175.3
1981	33.6	1,914	64.3	130.0	194.3	58.0	56.1	1.9	158.3
1982	26.1	1,933	50.4	136.3	186.7	48.9	47.3	1.6	131.2
1983	20.9	1,809	37.8	137.8	175.6	46.7	45.2	1.5	145.7
1984	19.8	1,889	37.4	128.9	166.3	45.2	42.7	2.7	156.1
1985	19.9	1,995	39.8	121.1	160.9	43.7	41.3	2.4	153.0
1986	17.2	1,767	30.4	117.3	147.7	48.4	46.1	2.3	153.2
1987	2/ 13.9	2/ 1,856	2/ 25.8	99.3	2/ 125.1	NA	NA	NA	NA

NA = Not available.

1/ Marketing year beginning October 1 for types 41-55. Marketing year beginning July 1 for types 61 and 62. 2/ Preliminary. Source: (12).

Appendix table 15--Per acre costs of producing and selling flue-cured tobacco

Item	Production and sales costs						
	1979	1980	1981	1982	1983	1984	1985
	Dollars per acre						
Variable costs	1,160.35	1,319.99	1,449.89	1,540.41	1,644.11	1,671.82	2,080.10
Labor 1/	522.15	540.99	564.35	594.27	592.96	582.48	605.98
Plant bed materials 2/	36.56	42.69	48.14	49.47	50.27	50.72	50.13
Fertilizer and lime	70.93	89.75	98.11	93.26	87.35	91.51	91.60
Pesticides 3/	69.16	74.15	80.50	86.60	91.61	94.08	94.44
Sucker control chemicals	29.98	33.06	37.12	39.07	40.05	40.46	40.55
Fuel and lubricants 4/	44.84	64.18	76.47	72.50	64.39	64.02	63.81
Curing fuel and electricity 5/	186.32	255.88	289.59	267.58	314.36	312.61	299.25
Repairs 6/	53.08	57.89	63.62	65.15	65.96	67.89	67.55
Marketing fees	79.38	85.75	105.95	113.91	106.95	119.85	112.80
No-net-cost-fund	--	--	--	63.78	140.28	154.42	559.50
Inspection and grading fees	--	--	--	11.69	11.02	12.13	12.31
Other 7/	53.99	57.61	63.64	64.18	63.88	64.08	64.67
Interest	13.92	18.04	22.40	18.96	15.03	17.26	17.51
Machinery and barn ownership	274.41	326.78	398.35	429.10	423.56	471.84	478.28
Replacement	149.37	167.13	194.12	210.82	209.01	233.86	235.88
Interest	99.54	130.52	170.87	182.57	178.37	195.96	200.21
Taxes and insurance	25.83	29.13	33.36	35.71	36.18	42.02	42.19
General farm overhead	30.56	35.52	38.87	40.68	41.35	42.58	42.70
Management 8/	146.55	168.22	188.71	201.02	210.09	218.58	260.11
Total, excluding land and quota	1,611.83	1,850.51	2,075.80	2,211.21	2,319.92	2,404.53	2,861.19
Land and quota allocation for share-rent 9/	683.97	695.04	896.69	975.43	891.22	NA	NA
	Pounds						
Yield per acre	1,890	1,957	2,162	2,216	2,004	2,206	2,238

-- = Not applicable.
NA = Not available.
1/Includes operator, family, exchange, and hired labor valued at prevailing wage rates. 2/ Includes plant bed seed, fertilizer, pesticides, and custom fumigation. 3/ Includes insecticides, herbicides, and fungicides. 4/ Includes tractor and machinery fuel and lubrication. 5/ Includes cost of liquid petroleum gas, fuel oil, or diesel fuel and electricity used to cure tobacco. 6/ Includes machinery, equipment, and barn repairs. 7/ Includes sticks, twine, sheets, cover crop seed, and tobacco crop insurance. 8/ Based on 10 percent of all costs listed above. 9/ Based on net-share rent approach. Source: (12).

Appendix table 16--Volume costs of producing and selling flue-cured tobacco

Item	Production and sales costs						
	1979	1980	1981	1982	1983	1984	1985
	Dollars per 100 pounds						
Variable costs	61.40	67.45	67.46	72.46	82.04	75.75	92.94
Labor 1/	27.63	27.64	26.10	27.95	29.59	26.40	27.08
Plant bed materials 2/	1.93	2.18	2.23	2.33	2.51	2.30	2.24
Fertilizer and lime	3.75	4.59	4.54	4.39	4.36	4.15	4.09
Pesticides 3/	3.66	3.79	3.72	4.07	4.57	4.26	4.22
Sucker control chemicals	1.59	1.69	1.72	1.84	2.00	1.83	1.81
Fuel and lubricants 4/	2.37	3.28	3.54	3.41	3.21	2.90	2.85
Curing fuel and electricity 5/	9.86	13.08	13.39	12.59	15.69	14.17	13.37
Repairs 6/	2.81	2.96	2.94	3.06	3.29	3.08	3.02
Marketing fees	4.20	4.38	4.90	5.36	5.34	5.43	5.04
No-net-cost fund	--	--	--	3.00	7.00	7.00	25.00
Inspection and grading fees	--	--	--	.55	.55	.55	.55
Other 7/	2.86	2.94	2.94	3.02	3.19	2.90	2.89
Interest	.74	.92	1.04	.89	.75	.78	.78
Machinery and barn ownership	14.52	16.70	18.42	20.18	21.14	21.39	21.37
Replacement	7.90	8.54	8.98	9.92	10.43	10.60	10.54
Interest	5.27	6.67	7.90	8.59	8.90	8.88	8.95
Taxes and insurance	1.37	1.49	1.54	1.68	1.81	1.90	1.89
General farm overhead	1.62	1.82	1.80	1.91	2.06	1.93	1.91
Management 8/	7.75	8.60	8.73	9.46	10.52	9.91	11.62
Total, excluding land and quota	85.29	94.57	96.01	104.01	115.76	108.98	127.85
Land and quota allocation for share-rent 9/	36.19	35.52	41.47	45.88	44.47	NA	NA
	Pounds						
Yield per acre	1,890	1,957	2,162	2,126	2,004	2,206	2,238

-- = Not applicable.
NA = Not available.
1/ Includes operator, family, exchange, and hired labor valued at prevailing wage rates. 2/ Includes plant bed seed, fertilizer, pesticides, and custom fumigation. 3/ Includes insecticides, herbicides, and fungicides. 4/ Includes tractor and machinery fuel and lubrication. 5/ Includes cost of liquid petroleum gas, fuel oil, or diesel fuel, and electricity used to cure tobacco. 6/ Includes machinery, equipment and barn repairs. 7/ Includes sticks, twine, sheets, cover crop seed, and tobacco crop insurance. 8/ Based on 10 percent of all costs listed above. 9/ Based on net-share rent approach. Source: (12).

Appendix table 17--Per acre costs of producing and selling burley tobacco

Item	Production and sales costs						
	1979	1980	1981	1982	1983	1984	1985
	Dollars per acre						
Variable costs 1/	1,708.70	1,939.74	2,155.29	2,231.89	1,952.06	2,528.93	2,425.49
Labor 2/	1,090.91	1,172.99	1,257.99	1,275.22	1,054.19	1,377.24	1,425.45
Hired	380.31	408.90	438.48	444.48	367.44	480.04	496.84
Family and exchange	345.66	371.61	398.41	403.86	333.86	436.17	451.44
Operator	364.94	392.48	421.10	426.88	352.89	461.03	477.17
Fertilizer and lime	153.12	193.31	218.44	220.19	209.97	214.17	209.89
Pesticides 3/	48.49	52.71	68.25	73.25	72.73	70.55	71.26
Sucker control chemicals	10.43	11.70	13.10	14.06	13.96	13.54	13.54
Curing and heating fuel 4/	10.96	14.50	16.10	15.01	15.05	14.67	14.23
Custom operations 5/	47.74	53.52	64.22	68.93	67.76	69.12	70.50
Fuel and lubricants	65.60	93.43	107.44	103.45	103.72	104.24	100.07
Repairs	49.33	55.31	63.61	68.26	68.45	70.16	72.62
Tobacco crop insurance 6/	34.84	37.30	39.91	42.43	0	44.06	45.38
Marketing fees	126.73	175.88	207.25	222.80	144.00	223.15	188.80
No-net-cost account	--	--	--	24.62	81.45	214.20	95.00
Inspection and grading fees	--	--	--	13.54	8.96	13.09	13.06
Other 7/	70.55	79.09	98.98	90.13	111.82	100.74	105.69
Machinery ownership costs 8/	272.69	291.51	316.29	337.76	342.00	347.13	352.34
Barn ownership costs 9/	289.47	300.18	312.19	322.52	324.39	326.94	329.56
Insurance 10/	34.44	37.20	39.80	41.92	42.03	43.29	44.59
Irrigation costs	15.03	16.83	19.35	20.76	21.02	21.65	22.30
General farm overhead	40.90	45.81	51.31	54.04	54.40	55.76	56.88
Management 11/	177.42	246.23	290.15	311.91	201.60	312.41	264.33
Total, excluding land and quota	2,538.65	2,877.50	3,184.38	3,320.80	2,937.60	3,636.11	3,495.50
Land and quota charge 12/	820.16	998.98	1,170.65	1,228.11	969.41	1,163.56	1,026.91
	Pounds						
Yield per acre 13/	1,748	2,119	2,288	2,462	1,629	2,380	2,375

-- = Not applicable.

1/ Includes interest on operating expenses. 2/ Includes operator, family, and exchange labor valued at prevailing wage rates. 3/ Includes fungicides, herbicides, and pesticides. 4/ Includes fuel for curing tobacco and heating the stripping room. 5/ Includes costs of materials in cases when the farmer could not separate the cost of the materials and the cost of the custom operations. 6/ Net of payments for losses. Assumed at zero in 1983 because of severe drought. 7/ Includes tobacco seed, cover crop seed, plant bed canvas, car costs, mule and horse upkeep, and other miscellaneous items. 8/ Excludes insurance. 9/ Excludes insurance and taxes. 10/ Includes tobacco's prorated share of general farm insurance, including machinery and barn insurance. 11/ Estimated at 7 percent of gross receipts. 12/ Calculated on the net-share rent basis. 13/ The yield estimates are the weighted average yields for counties in the study area (15). Source: (12).

Appendix table 18--Volume costs of producing and selling burley tobacco

Item	Production and sales costs						
	1979	1980	1981	1982	1983	1984	1985
	Dollars per 100 pounds						
Variable costs 1/	97.75	91.54	94.19	90.64	119.83	106.26	102.13
Labor 2/	62.41	55.36	54.98	51.79	64.71	57.87	60.02
Hired	21.76	19.30	19.16	18.05	22.56	20.17	20.92
Family and exchange	19.77	17.54	17.41	16.40	20.49	18.33	19.01
Operator	20.88	18.52	18.40	17.34	21.66	19.37	20.09
Fertilizer and lime	8.76	9.12	9.55	8.94	12.89	9.00	8.84
Pesticides 3/	2.77	2.49	2.98	2.98	4.46	2.96	3.00
Sucker control chemicals	.60	.55	.57	.57	.86	.57	.57
Curing and heating fuel 4/	.63	.68	.70	.61	.92	.62	.60
Custom operations 5/	2.73	2.53	2.81	2.80	4.16	2.90	2.97
Fuel and lubricants	3.75	4.41	4.70	4.20	6.37	4.38	4.21
Repairs	2.82	2.61	2.78	2.77	4.20	2.95	3.06
Tobacco crop insurance 6/	1.99	1.76	1.74	1.72	0	1.85	1.91
Marketing fees	7.25	8.30	9.06	9.05	8.84	9.38	7.95
No-net-cost account	--	--	--	1.00	5.00	9.00	4.00
Inspection and grading fees	--	--	--	.55	.55	.55	.55
Other 7/	4.04	3.73	4.33	3.66	6.86	4.23	4.45
Machinery ownership costs 8/	15.60	13.76	13.82	13.72	20.99	14.59	14.84
Barn ownership costs 9/	16.56	14.17	13.64	13.10	19.91	13.74	13.88
Insurance 10/	1.97	1.76	1.74	1.70	2.58	1.82	1.88
Irrigation costs	0.86	0.79	.85	.84	1.29	.91	.94
General farm overhead	2.34	2.16	2.24	2.19	3.34	2.34	2.39
Management 11/	10.15	11.62	12.68	12.67	12.38	13.13	11.13
Total, excluding land and quota	142.95	135.80	139.18	134.86	180.33	152.78	147.19
Land and quota charge 12/	46.92	47.14	51.16	49.88	59.51	48.89	43.24
	Pounds						
Yield per acre 13/	1,748	2,119	2,288	2,462	1,629	2,380	2,375

-- = Not applicable.

1/ Includes interest on operating expenses. 2/ Includes operator, family, and exchange labor valued at prevailing wage rates. 3/ Includes fungicides, herbicides, and pesticides. 4/ Includes fuel for curing tobacco and heating the stripping room. 5/ Includes costs of materials in cases when the farmer could not separate the cost of the material and the cost of the custom operations. 6/ Net of payments for losses. Assumed at zero in 1983 because of severe drought. 7/ Includes tobacco seed, cover crop seed, plant bed canvas, car costs, mule and horse upkeep, and other miscellaneous items. 8/ Excludes insurance. 9/ Excludes insurance and taxes. 10/ Includes tobacco's prorated share of general farm insurance, including machinery and barn insurance. 11/ Estimated at 7 percent of gross receipts. 12/ Calculated on the net-share rent basis. 13/ The yield estimates are the weighted-average yields for counties in the study area (15). Source: (12).

Appendix table 19--Flue-cured tobacco production in selected countries

Country	Production					
	1935-39	1947-51	1960-64	1970-74	1980-84	1985-86
	Million pounds (average) 1/					
Canada	54.6	111.6	183.7	223.3	212.5	171.5
United States	863.6	1,246.2	1,335.2	1,139.1	988.1	722.4
Argentina	.6	8.0	21.8	62.0	86.1	80.0
Brazil	12.5	45.5	119.2	190.5	510.1	573.2
Italy	3.8	16.1	20.3	19.3	57.0	88.0
Zimbabwe	26.1	88.4	243.8	140.9	213.3	242.3
South Africa	2.7	21.8	28.4	40.4	51.0	58.3
China	235.0	250.0	2/ 750.0	1,155.2	2,786.2	3,810.7
India	26.9	64.5	183.9	255.7	288.4	229.0
Indonesia	4.8	1.7	41.5	31.5	63.5	129.5
Japan	74.3	86.9	203.8	198.7	183.0	148.8
Korea	21.8	19.0	56.1	141.7	149.6	117.2
Thailand	.9	8.2	22.5	52.4	109.5	81.6
Australia	5.3	3.6	26.8	34.7	31.8	27.3
World total 3/	1,350.0	2,024.7	3,329.5	4,194.9	6,501.7	7,418.6

1/ Farm sales weight. 2/ Less than a 5-year average. 3/ Total includes data for countries not listed. Source: (9).

Appendix table 20--Burley tobacco production in selected countries

Country	Production				
	1965-69	1970-74	1975-79	1980-84	1985-86
	Million pounds (average) 1/				
United States	573.7	539.4	585.5	664.7	490.6
Mexico	16.4	37.9	53.3	46.4	65.2
Argentina	2/ 8.1	14.6	21.5	27.0	27.6
Brazil	11.5	29.7	68.9	67.9	91.5
Venezuela	6.9	11.0	10.3	11.5	10.9
Greece	17.7	28.4	39.6	54.7	53.3
Italy	45.5	73.3	102.3	121.4	101.7
Spain	34.1	36.3	52.0	81.5	62.2
Japan	25.0	33.1	50.5	40.7	46.0
Korea	28.1	52.0	85.2	67.5	57.7
Malawi	6.3	12.4	22.7	58.3	70.7
Zimbabwe	4.9	11.5	6.4	8.1	6.4
World total 3/	823.2	985.8	1,272.2	1,477.3	1,422.6

1/ Farm sales weight. 2/ Less than a 5-year average. 3/ Total includes data for countries not listed. Source: (9).

Appendix table 21--Oriental tobacco production in selected countries

Country or area	Production										
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
	Million pounds 1/										
Bulgaria	207.2	253.5	297.6	242.5	246.9	264.6	235.9	271.2	229.3	226.9	242.5
Greece	224.3	237.4	235.3	218.0	235.1	238.5	187.9	243.0	223.7	259.6	285.7
Italy	55.6	55.1	69.1	55.4	56.2	53.8	59.5	59.0	59.5	66.8	61.7
Turkey	545.8	643.9	476.4	502.3	369.3	454.9	513.0	418.5	429.5	375.9	356.0
Soviet Union	661.4	604.1	652.6	626.1	590.8	665.8	835.5	804.7	793.7	820.1	831.1
Other countries	705.8	217.2	360.0	379.2	429.7	108.6	145.1	327.2	353.3	308.4	309.0
Total 2/	2,400.2	2,001.2	2,091.0	2,023.5	1,928.1	1,786.2	1,977.0	2,123.6	2,099.0	2,057.7	2,086.0

1/ Farm sales weight. 2/ Total includes data for countries not listed. Source: (13).

Appendix table 22—Cigarette production in selected countries

Country or area	Production									
	1965-69 average	1970-74 average	1975-79 average	1980	1981	1982	1983	1984	1985	1986 1/
	Billion cigarettes									
United States	567.5	497.0	682.2	714.2	736.5	694.2	667.0	668.8	665.3	658.0
China	554.6	575.0	593.6	760.0	866.0	942.5	968.8	1,062.5	1,178.0	1,296.5
West Germany	110.0	131.4	146.2	157.9	167.8	148.2	155.9	162.1	165.6	169.0
United Kingdom	133.9	150.2	155.9	155.6	149.6	144.6	141.9	130.5	124.0	112.0
Soviet Union	298.0	290.0	372.4	364.0	364.0	359.3	368.7	374.0	380.0	385.0
Japan	189.6	253.0	298.3	303.2	306.6	309.1	306.3	306.0	303.0	295.5
Brazil	65.5	83.8	127.1	142.7	135.0	132.3	129.2	127.8	146.3	168.9
Italy	62.3	67.6	71.2	73.1	72.2	80.6	83.7	80.4	78.7	75.6
Bulgaria	39.8	65.2	76.3	77.0	76.0	75.0	75.2	88.0	92.2	88.3
Subtotal	2,021.3	2,113.2	2,523.2	2,747.7	2,873.7	2,885.8	2,896.7	3,000.1	3,133.3	3,248.8
Other countries	991.9	1,395.3	1,481.7	1,638.8	1,670.1	1,669.9	1,657.5	1,696.4	1,718.4	1,723.5
World total 2/	3,013.2	3,508.5	4,005.0	4,386.4	4,543.8	4,555.7	4,554.2	4,696.5	4,851.7	4,972.3
	Percent									
U.S. share of world production	19	14	17	16	16	15	15	14	14	13

1/ Preliminary. 2/ Total includes data for countries not listed. Source: (13).

Appendix table 23--Cigarette exports from selected countries

Country or area	Exports									
	1965-69 average	1970-74 average	1975-79 average	1980	1981	1982	1983	1984	1985	1986 1/
	Billion cigarettes									
United States	24.3	36.8	66.4	82.0	82.6	73.6	60.7	56.5	58.9	64.3
Hong Kong	2.8	2.8	2.2	4.1	5.1	4.8	7.9	11.8	17.1	17.2
Belgium	3.6	4.8	10.1	10.9	12.0	12.7	14.1	13.1	15.0	15.3
West Germany	6.0	7.7	23.9	31.6	36.9	38.5	43.8	44.3	47.8	53.6
Netherlands	2.7	9.7	16.8	30.1	30.0	35.6	36.2	42.2	46.0	47.7
United Kingdom	13.3	19.2	28.1	36.9	41.9	46.4	46.2	39.6	39.4	29.9
Switzerland	6.0	11.5	12.9	12.8	13.8	10.1	9.5	9.3	7.0	7.9
Bulgaria	28.9	52.2	62.0	64.0	63.0	62.0	60.8	72.0	75.2	72.3
Yugoslavia	.5	.7	.9	4.2	14.1	9.3	2.5	2.6	2.2	1.3
Subtotal	88.1	145.4	223.3	276.6	299.4	293.0	281.7	291.4	308.6	309.5
Other countries	22.3	29.4	35.9	46.1	46.2	49.0	46.7	46.1	51.4	53.4
World total 2/	110.4	174.8	259.2	322.7	345.6	342.0	328.4	337.5	360.0	362.9
	Percent									
U.S. share of world exports	22	21	26	25	24	22	19	17	16	18

1/ Preliminary. 2/ Total includes data for countries not listed. Source: (13).

*U.S. GOVERNMENT PRINTING OFFICE:1988-201-089:80274/ERS

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